Access DB# 138149

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sin J. Lee Examiner #: 76060 Date: 11-16-04
Art Unit: 1752 Phone Number 30 2-1333 Serial Number: 10/732,734
Mail Box and Bldg/Room Location: 9D60 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Stable non-photosensitive polyimide precursor composition for use in bilayer imaging system

Inventors (please provide full names): Rushkin, Ilya; Naiini, Ahmad A.; Weber, William D.; Perry, Don; Hopla, Richan

Earliest Priority Filing Date: 12-10-03

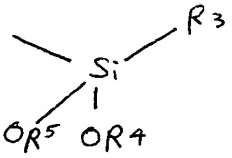
**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please search for a polyimide precursor composition containing

(1) polyamic acid(s)

(2) one or more ~~adhesion promoters~~ compound selected from the group consiting of Formulas I-VI of claim # 1

* (Please note that all of those formulas contain



in common)

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STAFF USE ONLY

Searcher: EA
Searcher Phone #:
Searcher Location:
Date Searcher Picked Up:
Date Completed: 11-24-04
Searcher Prep & Review Time: 5
~~Clerical Prep Time:~~
Online Time: 85

Type of Search

NA Sequence (#)
AA Sequence (#)
Structure (#) (7)
Bibliographic (and)
Litigation
Fulltext
Patent Family
Other

Vendors and cost where applicable

STN $283.86
Dialog
Questel/Orbit
Dr.Link
Lexis/Nexis
Sequence Systems
WWW/Internet
Other (specify)

PTO-1590 (8-01)

339.7755USU

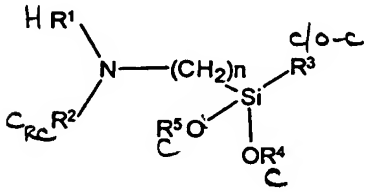
We claim:

1. A non-photosensitive polyimide precursor composition comprising:

a) one or more polyamic acids soluble in *gamma*-butyrolactone (GBL) and aqueous tetramethyl ammonium hydroxide, , and with the proviso that the polyamic acid is also resistant to a solvent used in a photosensitive composition with which the polyimide precursor composition is to be used;

b) a solvent comprising *gamma*-butyrolactone; and

c) one or more adhesion promoters selected from the group consisting of the structures described by Formulae I-VI



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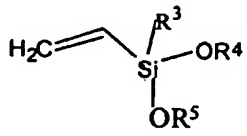

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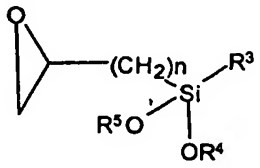

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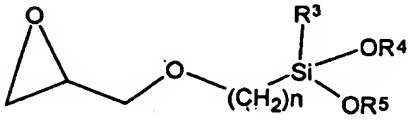

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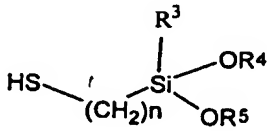

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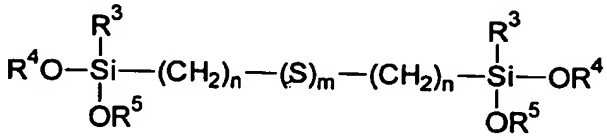
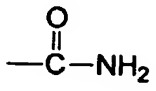


VI

wherein R^1 is selected from the group consisting of H, C_1 –C_{10} linear, cyclic or branched alkyl, phenyl, halophenyl and alkyl substituted phenyl, R^2 is selected from the group consisting of C_1 –C_{10} linear, cyclic or branched alkyl, phenyl, halophenyl

and alkyl substituted phenyl or one of the following moieties VII, VIII , or IX



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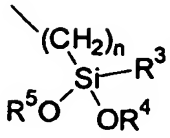

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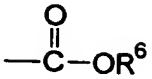
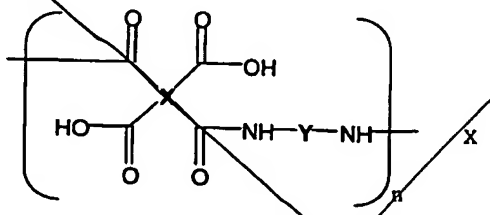


IX

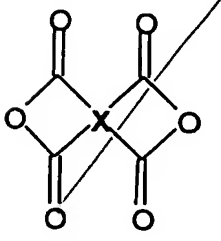
where R^3 is C_1 –C_4 linear or branched alkyl or C_1 –C_4 linear or branched alkoxy group, R^4 , R^5 and R^6 are independently a C_1 –C_4 linear or branched alkyl group, m is an integer from 1 to about 4, and n is an integer from 1 to about 5.

2. A composition according to claim 1 wherein the one or more polyamic acids is selected from the group consisting of polyamic acids of the Formula X

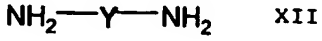


where n is an integer ranging from about 5 to about 200 wherein **X** and **Y** are independently selected from aromatic and aliphatic moieties which may contain heteroatoms.

3. A composition according to claim 2 wherein the one or more polyamic acids of Formula X is one prepared by reacting at least one anhydride monomer of Formula XI with at least one diamine monomer of Formula XII



XI



XII

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USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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                 SAV TEM L3 LEE734/A
L4          6485 SEA L3 NOT PMS/CI
                 E POLYAMIC/PCT
L5         32107 SEA "POLYAMIC ACID"/PCT

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L8         23312 SEA L4
L9           255 SEA L8 AND (L6 OR L7)

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L13         9644 SEA (POLYAMIC# OR POLY(A)AMIC#)(A)ACID# OR ((POLYIMIDE#
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L14          259 SEA L8 AND (L6 OR L7 OR L13)
L15           10 SEA L14 AND L11
L16        28543 SEA L3
L17          308 SEA L16 AND (L6 OR L7 OR L13)
L18           13 SEA L17 AND L11
L19           13 SEA L12 OR L15 OR L18

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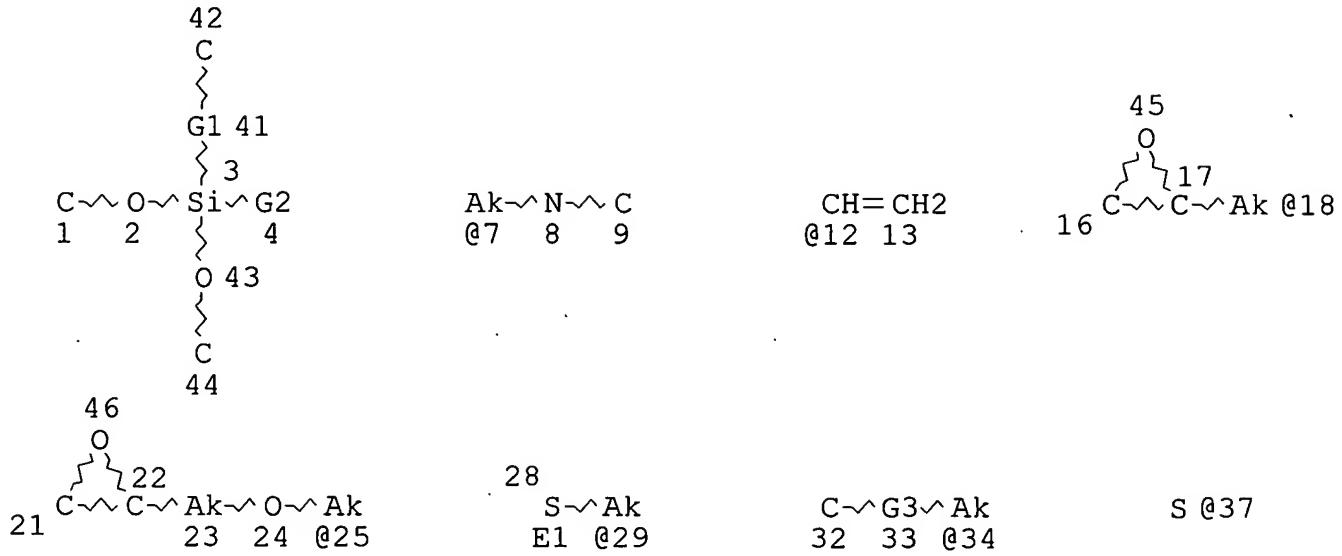


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GRAPH ATTRIBUTES:
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Applicant's.

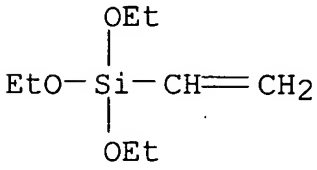
L19 ANSWER 1 OF 13 HCA COPYRIGHT 2004 ACS on STN
141:96687 Process for producing a heat resistant relief structure.
Naiini, Ahmad A.; Rushkin, Ii'ya; Hopla, Richard; Waterson, Pamela J.; Weber, William D. (Arch Specialty Chemicals, Inc., USA). PCT Int. Appl. WO 2004055593 A2 20040701, 53 pp. DESIGNATED STATES: W: JP, KR, SG; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-US39442 20031211. PRIORITY: US 2002-PV432794 20021212.

AB A process for producing a heat resistant relief structure on a substrate comprises the steps of: (a) providing a substrate; (b) in a first coating step, coating the substrate with a compn. comprising a **polyamic acid** and **gamma-butyrolactone** to form a layer of **polyamic acid** having a thickness of at least about 0.5 um; (c) baking the layer of **polyamic acid** at a temp. or temps. below 140 .degree.C; (d) in a second coating step, coating a layer of a photoresist over the layer of **polyamic acid** to form a bilayer coating; (e) exposing the bilayer coating to radiation <250 nm (f) developing the bilayer coating with one or more aq. tetra-Me ammonium hydroxide developers; (g) removing the remaining photoresist layer; and (h) curing the **polyamic acid** layer at a temp. at least about 200 .degree.C to produce a polyimide structure wherein the **polyamic acid** is sol. in aq. tetra-Me ammonium hydroxide and insol. in a solvent used with the photoresist.

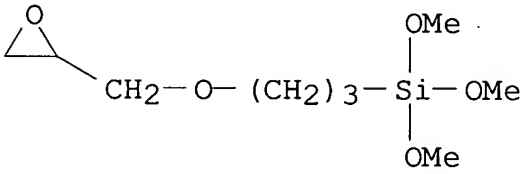
IT **78-08-0 2530-83-8 2530-86-1 3068-76-6 4420-74-0 60764-86-5**

155159-90-3
(adhesion promoter; process for producing heat resistant relief structure)

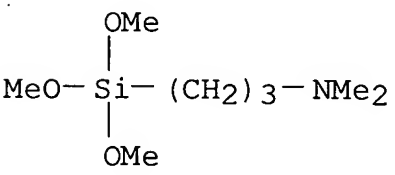
RN 78-08-0 HCA
CN Silane, ethenyltriethoxy- (9CI) (CA INDEX NAME)



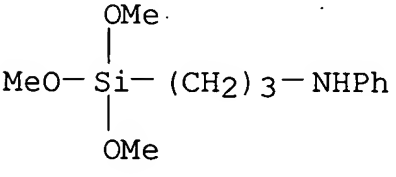
RN 2530-83-8 HCA
CN Silane, trimethoxy[3-(oxiranylmethoxy)propyl]- (9CI) (CA INDEX NAME)



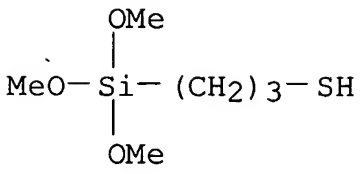
RN 2530-86-1 HCA
CN 1-Propanamine, N,N-dimethyl-3-(trimethoxysilyl)- (9CI) (CA INDEX NAME)



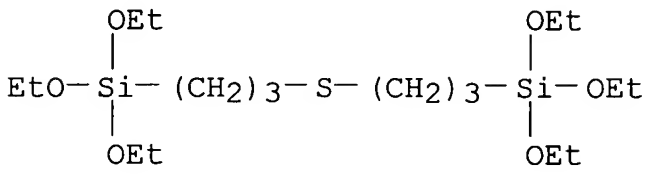
RN 3068-76-6 HCA
CN Benzenamine, N-[3-(trimethoxysilyl)propyl]- (9CI) (CA INDEX NAME)



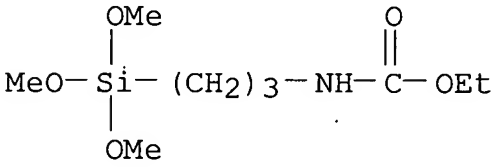
RN 4420-74-0 HCA
CN 1-Propanethiol, 3-(trimethoxysilyl)- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 60764-86-5 HCA
CN 3,13-Dioxa-8-thia-4,12-disilapentadecane, 4,4,12,12-tetraethoxy- (9CI) (CA INDEX NAME)



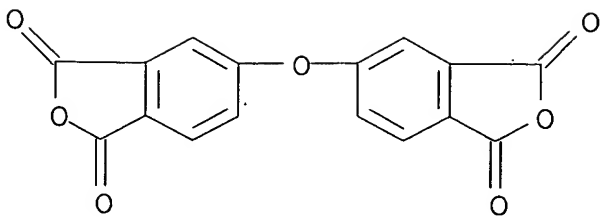
RN 155159-90-3 HCA
CN Carbamic acid, [3-(trimethoxysilyl)propyl]-, ethyl ester (9CI) (CA INDEX NAME)



IT **25736-02-1P**, 4,4'-Oxydiphthalic anhydride-oxydianiline copolymer **714258-31-8P**
(process for producing heat resistant relief structure)
RN 25736-02-1 HCA
CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 1823-59-2
CMF C16 H6 O7



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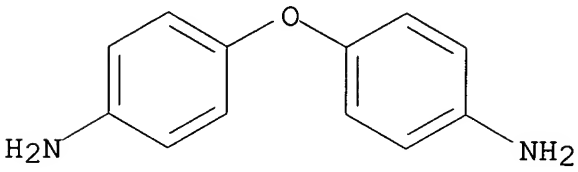
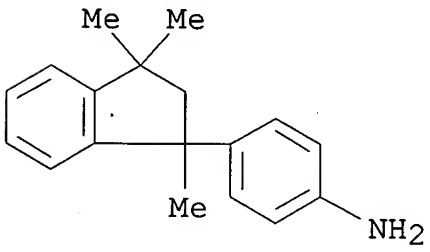
CRN 101-80-4
CMF C12 H12 N2 O



RN 714258-31-8 HCA
CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 1-(4-aminophenyl)-2,3-dihydro-1,3,3-trimethyl-1H-inden-ar-amine and 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 68170-20-7
CMF C18 H22 N2
CCI IDS



D1—NH_2

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CRN 1823-59-2
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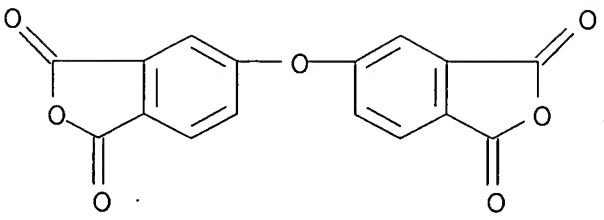

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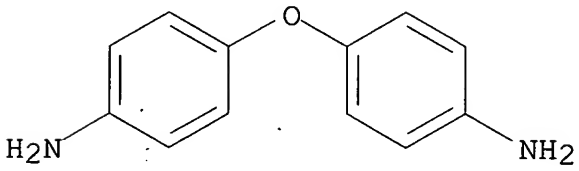
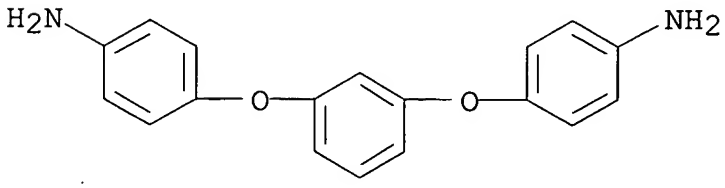


IT **72950-08-4P**, 1,3-Bis(4-aminophenoxy)benzene-4,4'-oxydiphthalic anhydride copolymer **105030-42-0P** **127709-00-6P**
(process for producing heat resistant relief structure)
RN 72950-08-4 HCA
CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 4,4'-[1,3-phenylenebis(oxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 2479-46-1
CMF C18 H16 N2 O2



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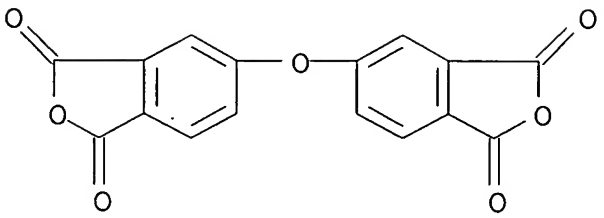

RN 105030-42-0 HCA
CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 3-(4-aminophenoxy)benzenamine (9CI) (CA INDEX NAME)

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CRN 2657-87-6
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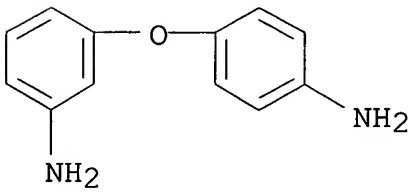

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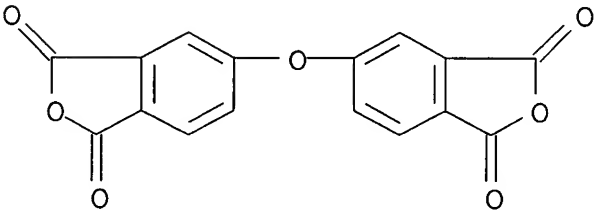
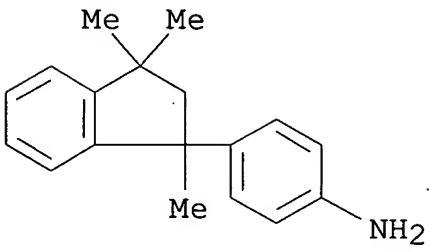


RN 127709-00-6 HCA
CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 1(or 3)-(4-aminophenyl)-2,3-dihydro-1,3,3(or 1,1,3)-trimethyl-1H-inden-5-amine (9CI) (CA INDEX NAME)

CM 1

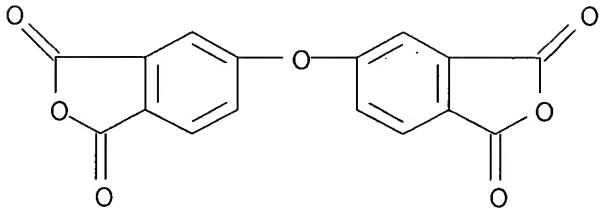
CRN 60451-10-7
CMF C18 H22 N2
CCI IDS



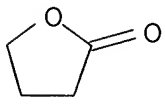
D1—NH_2

CM 2

CRN 1823-59-2
CMF C16 H6 O7



IT **96-48-0**, Butyrolactone
(solvent; process for producing heat resistant relief structure)
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IC ICM G03F
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38, 76
IT Polyethers, preparation
(**polyamic acid-**; process for producing heat

resistant relief structure)

IT **Polyamic acids**
Polyimides, preparation
(polyether-; process for producing heat resistant relief structure)

IT **78-08-0 2530-83-8 2530-86-1 3068-76-6 4420-74-0 60764-86-5 155159-90-3**
(adhesion promoter; process for producing heat resistant relief structure)

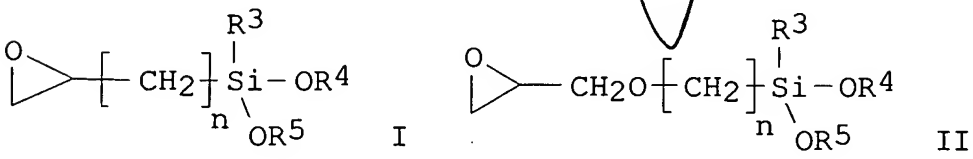
IT **25736-02-1P**, 4,4'-Oxydiphthalic anhydride-oxydianiline copolymer 197916-33-9P **714258-31-8P**
(process for producing heat resistant relief structure)

IT 9043-09-8P 9043-13-4P 25735-00-6P 34871-01-7P 64427-92-5P 64427-93-6P **72950-08-4P**, 1,3-Bis(4-aminophenoxy)benzene-4,4'-oxydiphthalic anhydride copolymer **105030-42-0P 127709-00-6P**
(process for producing heat resistant relief structure)

IT **96-48-0**, Butyrolactone
(solvent; process for producing heat resistant relief structure)

L19 ANSWER 2 OF 13 HCA COPYRIGHT 2004 ACS on STN
141:96686 Stable non-photosensitive **polyimide precursor** compositions for use in bilayer imaging systems.
Ilya, Rushkin; Naiini, Ahmad A.; Weber, William D.; Hopla, Richard; Perry, Don (Arch Specialty Chemicals, Inc., USA). PCT Int. Appl. WO 2004055592 A2 ~~20040~~701, 61 pp. DESIGNATED STATES: W: JP, KR, SG; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-US39441 20031211. PRIORITY: US 2002-PV432793 20021212.

GI



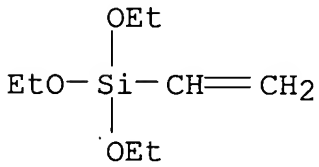
I II

AB The present invention relates to a stable non-photosensitive **polyimide precursor** compns. with an adhesion promoter in a non-NMP solvent for use in forming high temp. resistant relief images and a process for making said images. The non-photosensitive **polyimide precursor** compns. comprise (a) one or more **polyamic acids** sol. in **gamma-butyrolactone** (**GBL**) and aq.

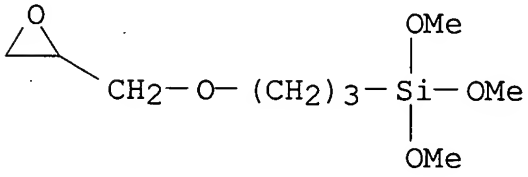
tetra-Me ammonium hydroxide , and with the proviso that the **polyamic acid** is also resistant to a solvent used in a photosensitive compn. with which the **polyimide precursor** compn. is to be used; (b) a solvent comprising **gamma-butyrolactone**; and (c) one or more adhesion promoters selected from structures described by Formulas: R1R2N-(CH2)nSiR3OR4OR5, CH2=CH-SiR3OR4OR5, HS-(CH2)n-SiR3OR4OR5, I, II, SiR3OR4OR5-(CH2)n-(S)m-(CH2)n-SiR3OR4OR5 (R1 = H, C1-C10 alkyl, Ph or halophenyl or alkyl substituted Ph; R2 = C1-C10 alkyl, Ph, halophenyl or alkyl substituted Ph or one of the following moieties -C(=O)NH2, -(CH2)nSiR3OR4OR5, -C(=O)OR6; R3 = C1-C4 alkyl, C1-C4 alkoxy group; R4-6 = C1-C4 alkyl group; m = 1-4; and n = 1-5).

IT **78-08-0 2530-83-8 2530-86-1 3068-76-6 4420-74-0 17945-05-0 60764-86-5**
(adhesion promoter; stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)

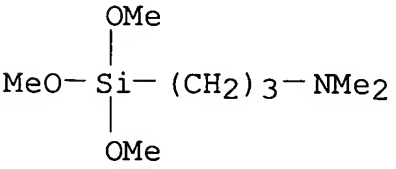
RN 78-08-0 HCA
CN Silane, ethenyltriethoxy- (9CI) (CA INDEX NAME)



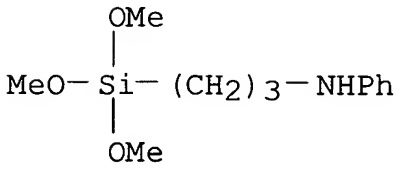
RN 2530-83-8 HCA
CN Silane, trimethoxy[3-(oxiranylmethoxy)propyl]- (9CI) (CA INDEX NAME)



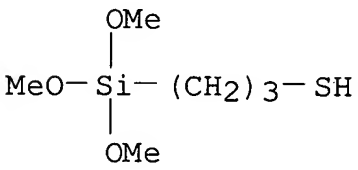
RN 2530-86-1 HCA
CN 1-Propanamine, N,N-dimethyl-3-(trimethoxysilyl)- (9CI) (CA INDEX NAME)



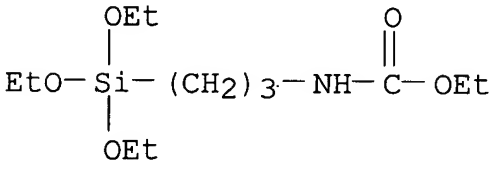
RN 3068-76-6 HCA
CN Benzenamine, N-[3-(trimethoxysilyl)propyl]- (9CI) (CA INDEX NAME)



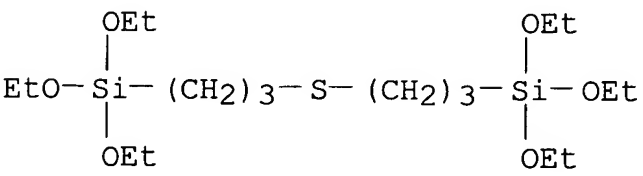
RN 4420-74-0 HCA
CN 1-Propanethiol, 3-(trimethoxysilyl)- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 17945-05-0 HCA
CN Carbamic acid, [3-(triethoxysilyl)propyl]-, ethyl ester (8CI, 9CI) (CA INDEX NAME)

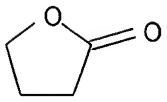


RN 60764-86-5 HCA
CN 3,13-Dioxa-8-thia-4,12-disilapentadecane, 4,4,12,12-tetraethoxy- (9CI) (CA INDEX NAME)



IT **96-48-0, .gamma.-Butyrolactone**
(solvent; stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)
RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



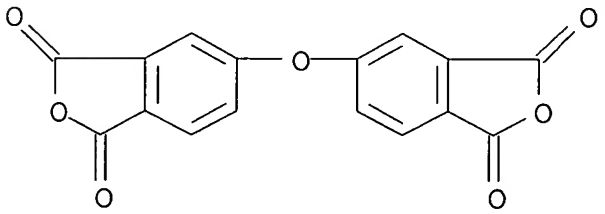
IT **25736-02-1P**, 4,4'-Oxydiphthalic anhydride-oxydianiline copolymer **72950-08-4P**, 1,3-Bis(4-aminophenoxy)benzene-4,4'-oxydiphthalic anhydride copolymer **105030-42-0P** **127709-00-6P** **714273-91-3P**
(stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)

RN 25736-02-1 HCA

CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

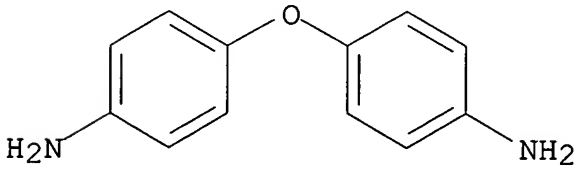
CM 1

CRN 1823-59-2
CMF C16 H6 O7



CM 2

CRN 101-80-4
CMF C12 H12 N2 O

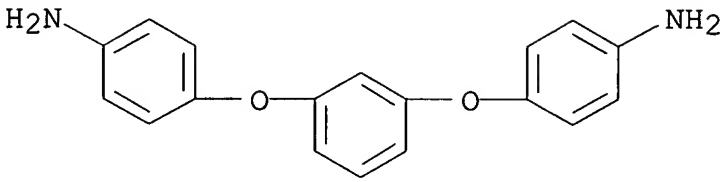


RN 72950-08-4 HCA

CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 4,4'-[1,3-phenylenebis(oxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

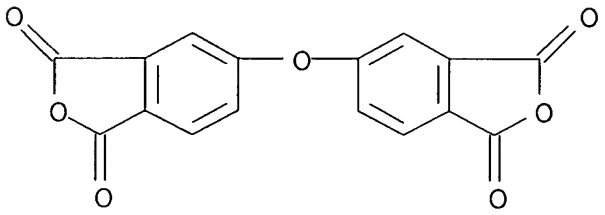
CM 1

CRN 2479-46-1
CMF C18 H16 N2 O2



CM 2

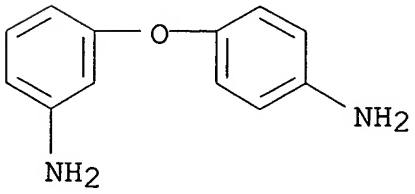
CRN 1823-59-2
CMF C16 H6 O7



RN 105030-42-0 HCA
CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 3-(4-aminophenoxy)benzenamine (9CI) (CA INDEX NAME)

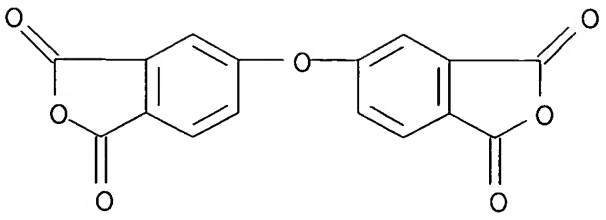
CM 1

CRN 2657-87-6
CMF C12 H12 N2 O



CM 2

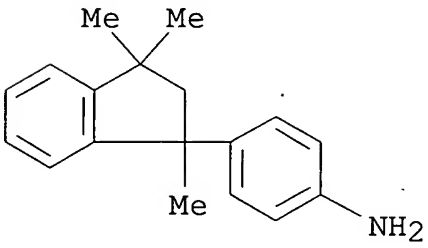
CRN 1823-59-2
CMF C16 H6 O7



RN 127709-00-6 HCA
CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 1(or 3)-(4-aminophenyl)-2,3-dihydro-1,3,3(or 1,1,3)-trimethyl-1H-inden-5-amine (9CI) (CA INDEX NAME)

CM 1

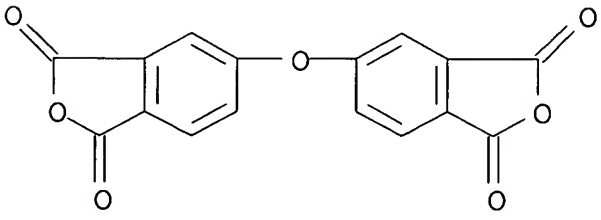
CRN 60451-10-7
CMF C18 H22 N2
CCI IDS



D1—NH_2

CM 2

CRN 1823-59-2
CMF C16 H6 O7

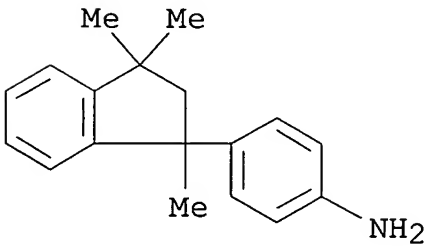


RN 714273-91-3 HCA
CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 1(or

3)-(4-aminophenyl)-2,3-dihydro-1,3,3(or 1,1,3)-trimethyl-1H-inden-5-amine and 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

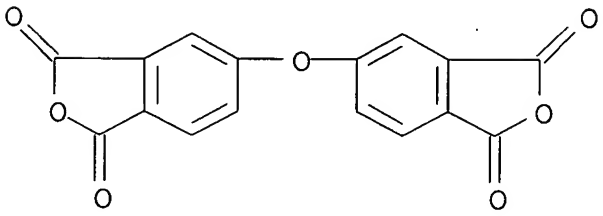
CRN 60451-10-7
CMF C18 H22 N2
CCI IDS



D1—NH_2

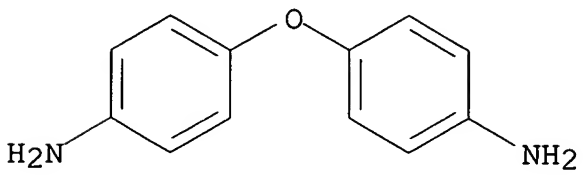
CM 2

CRN 1823-59-2
CMF C16 H6 O7



CM 3

CRN 101-80-4
CMF C12 H12 N2 O



IC ICM G03F
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38, 76
ST non photosensitive **polyimide precursor** compn bilayer imaging system photolithog
IT Photolithography
(UV; stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)
IT Polyethers, preparation
(**polyamic acid**-; stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)
IT **Polyamic acids**
Polyimides, preparation
(polyether-; stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)
IT Polyethers, preparation
(**polyimide**-; stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)
IT Adhesion promoters
Heat-resistant materials
(stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)
IT **Polyamic acids**
Polyimides, uses
(stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)
IT **78-08-0 2530-83-8 2530-86-1 3068-76-6 4420-74-0 17945-05-0 60764-86-5**
(adhesion promoter; stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)
IT 106-35-4, 3-Heptanone 108-10-1, 4-Methyl-2-pentanone 108-29-2, .gamma.-Valerolactone 110-43-0, 2-Heptanone 589-38-8, 3-Hexanone 591-78-6, 2-Hexanone 695-06-7, .gamma.-Caprolactone
(cosolvent; stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)
IT **96-48-0, .gamma.-Butyrolactone**
(solvent; stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)
IT **25736-02-1P**, 4,4'-Oxydiphthalic anhydride-oxydianiline copolymer 64427-92-5P 64427-93-6P **72950-08-4P**, 1,3-Bis(4-aminophenoxy)benzene-4,4'-oxydiphthalic anhydride copolymer **105030-42-0P 127709-00-6P** 197916-33-9P **714273-91-3P**

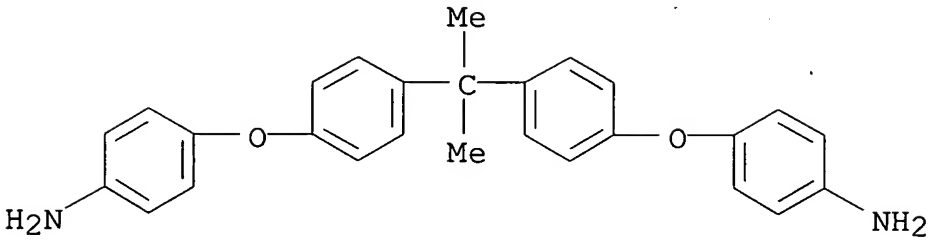
(stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)
IT 9043-09-8P 9043-13-4P 25735-00-6P 34871-01-7P
(stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)
IT 542-28-9, .delta.-Valerolactone
(stable non-photosensitive **polyimide precursor** compns. for use in bilayer imaging systems)

L19 ANSWER 3 OF 13 HCA COPYRIGHT 2004 ACS on STN
135:227963 Resin composition, heat-resistant resin paste and semiconductor device using them and method for manufacture thereof. Yano, Yasuhiro; Matsuura, Hidekazu; Nomura, Yoshihiro; Morishita, Yoshii; Sakata, Touichi; Nishizawa, Hiroshi; Tanaka, Toshiaki; Yasuda, Masaaki; Kaneda, Aizou (Hitachi Chemical Co., Ltd., Japan). PCT Int. Appl. WO 2001066645 A1 20010913, 95 pp. DESIGNATED STATES: W: AE, AG, AL, AU, BA, BB, BG, BR, BZ, CA, CN, CO, CR, CU, CZ, DM, DZ, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KR, LC, LK, LR, LT, LV, MA, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TT, UA, US, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2001-JP1714 20010306. PRIORITY: JP 2000-65718 20000306; JP 2000-70975 20000309; JP 2000-71023 20000309; JP 2000-71024 20000309; JP 2000-71025 20000309; JP 2000-224762 20000726.
AB A resin compn. comprises a heat-resistant resin (I) sol. in a solvent at room temp., a heat-resistant resin (II) insol. in a solvent at room temp. and sol. in the solvent at an elevated temp., a solvent, and optionally particles having rubber-like elasticity or a liq. Thus, I was prepd. from 2,2-bis[4-(4-aminophenoxy)phenyl]propane (III)and trimellitic anhydride chloride, II was prepd. from III, isophthalic acid dichloride, and benzophenonetetracarboxylic acid dianhydride, and a paste contg. I 15, II 15, and **.gamma.-butyrolactone** 70 g was printed on a Si wafer.
IT **110636-60-7P**, 2,2-Bis[4-(4-aminophenoxy)phenyl]propane-trimellitic acid chloride copolymer
(resin compn. and heat-resistant resin paste and semiconductor device using them and method f or manuf. thereof)
RN 110636-60-7 HCA
CN 1,2,4-Benzenetricarbonyl trichloride, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

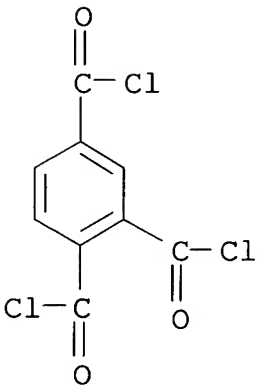
CRN 13080-86-9

CMF C27 H26 N2 O2



CM 2

CRN 3867-55-8
CMF C9 H3 Cl3 O3

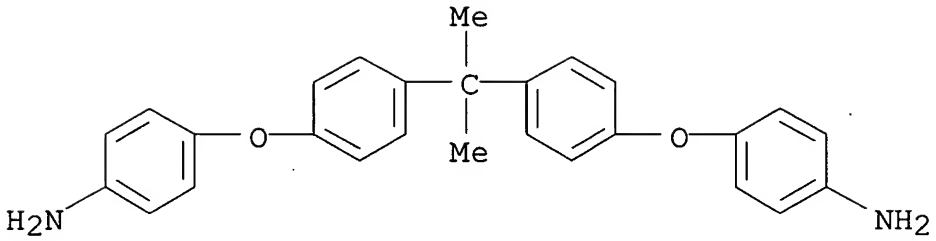


IT **69577-60-2P 82530-51-6P 87432-14-2P**
217180-63-7P 217180-69-3P 359011-86-2P
359011-87-3P 359011-88-4P 359011-89-5P
359011-90-8P 359011-91-9P 359011-92-0P
359011-93-1P
(resin compn. and heat-resistant resin paste and semiconductor device using them and method for manuf. thereof)

RN 69577-60-2 HCA
CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

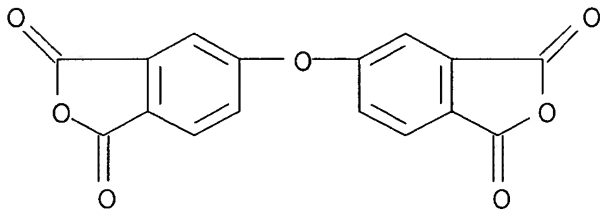
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



CM 2

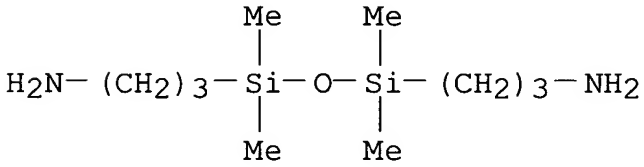
CRN 1823-59-2
CMF C16 H6 O7



RN 82530-51-6 HCA
CN 1,3-Isobenzofurandione, 5,5'-carbonylbis-, polymer with 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

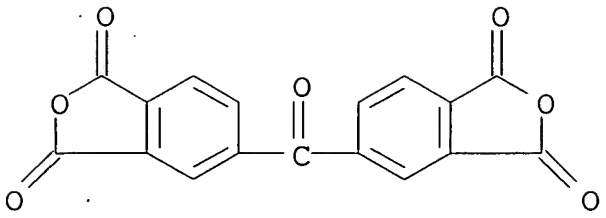
CM 1

CRN 2469-55-8
CMF C10 H28 N2 O Si2



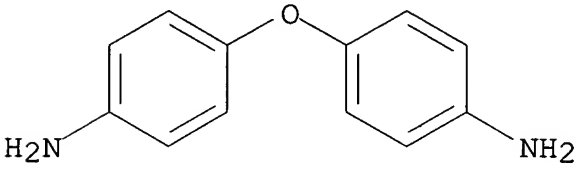
CM 2

CRN 2421-28-5
CMF C17 H6 O7



CM 3

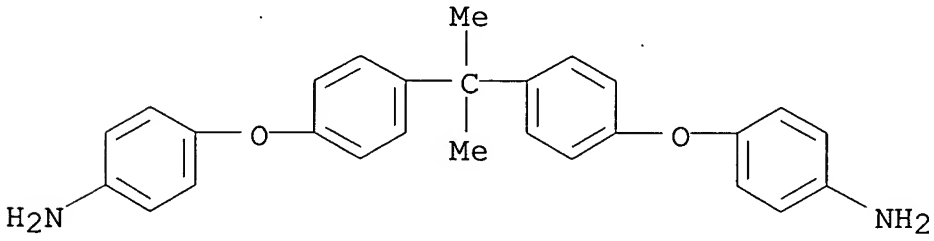
CRN 101-80-4
CMF C12 H12 N2 O



RN 87432-14-2 HCA
CN 1,3-Isobenzofurandione, 5,5'-carbonylbis-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine], 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

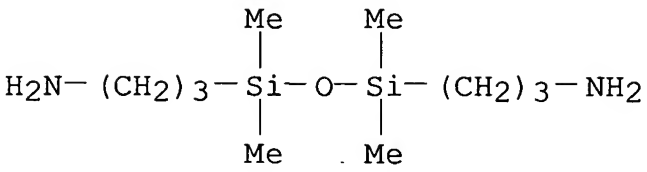
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



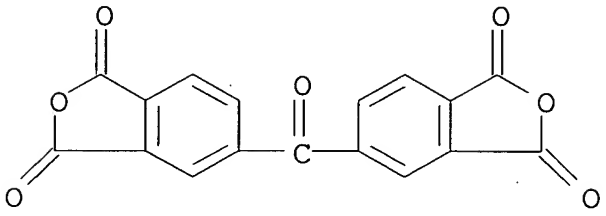
CM 2

CRN 2469-55-8
CMF C10 H28 N2 O Si2



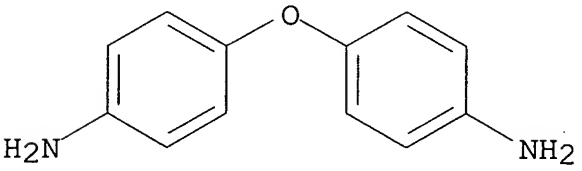
CM 3

CRN 2421-28-5
CMF C17 H6 O7



CM 4

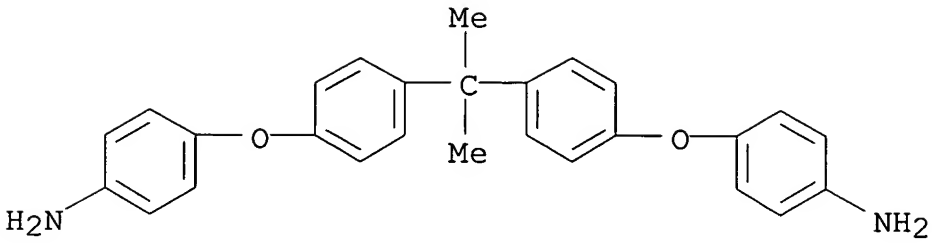
CRN 101-80-4
CMF C12 H12 N2 O



RN 217180-63-7 HCA
CN 1,3-Benzenedicarboxylic acid, dihydrazide, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine], 5,5'-sulfonylbis[1,3-isobenzofurandione] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

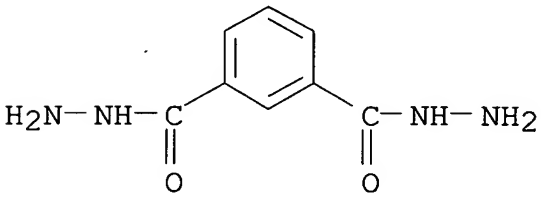
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



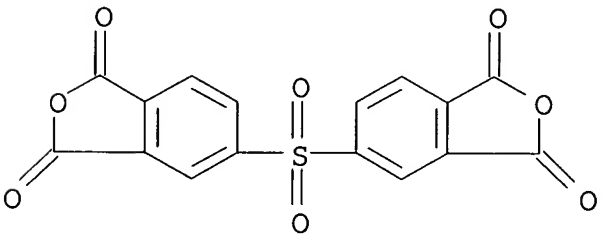
CM 2

CRN 2760-98-7
CMF C8 H10 N4 O2



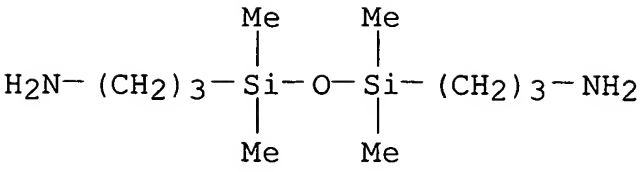
CM 3

CRN 2540-99-0
CMF C16 H6 O8 S



CM 4

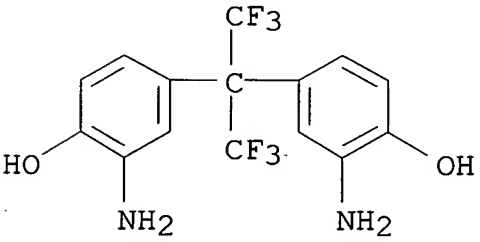
CRN 2469-55-8
CMF C10 H28 N2 O Si2



RN 217180-69-3 HCA
CN 1,3-Isobenzofurandione, 5,5'-sulfonylbis-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine] and 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] (9CI) (CA INDEX NAME)

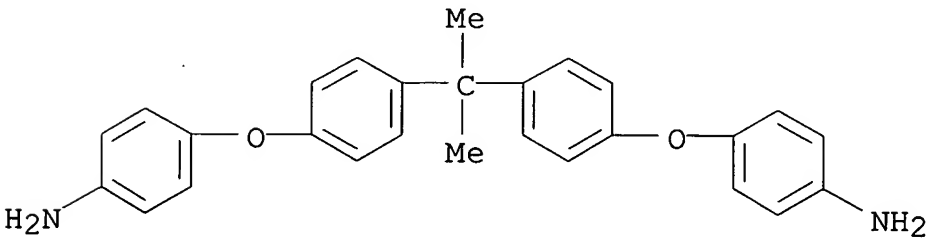
CM 1

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



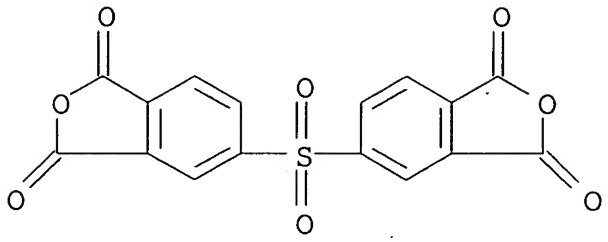
CM 2

CRN 13080-86-9
CMF C27 H26 N2 O2



CM 3

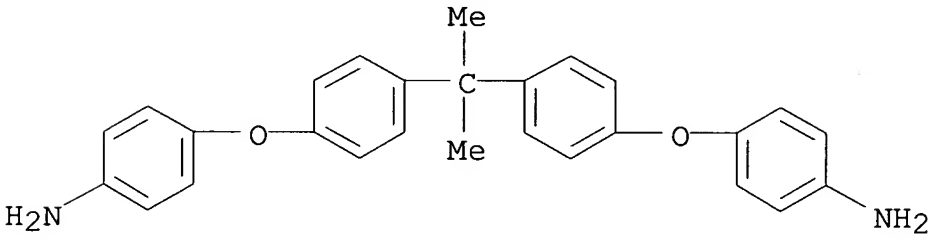
CRN 2540-99-0
CMF C16 H6 O8 S



RN 359011-86-2 HCA
CN 1,3-Benzenedicarbonyl dichloride, polymer with 5,5'-carbonylbis[1,3-isobenzofurandione] and 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

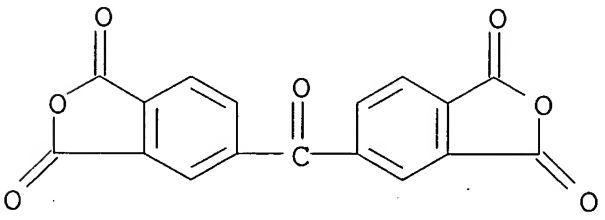
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



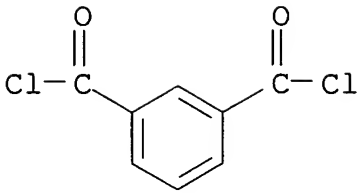
CM 2

CRN 2421-28-5
CMF C17 H6 O7



CM 3

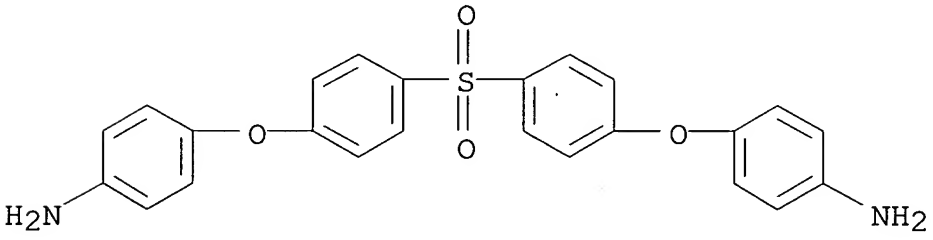
CRN 99-63-8
CMF C8 H4 Cl2 O2



RN 359011-87-3 HCA
CN 1,2,4-Benzenetricarbonyl trichloride, polymer with 4,4'-[sulfonylbis(4,1-phenyleneoxy)]bis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

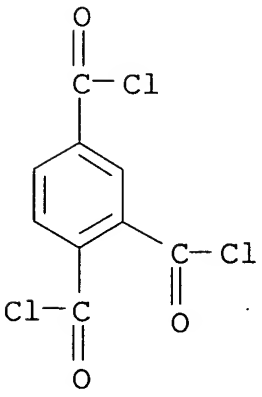
CM 1

CRN 13080-89-2
CMF C24 H20 N2 O4 S



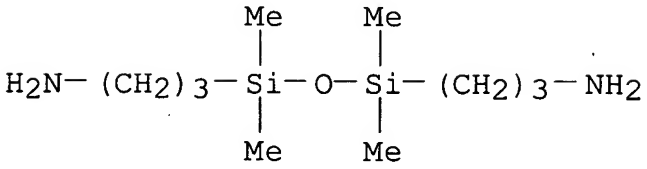
CM 2

CRN 3867-55-8
CMF C9 H3 Cl3 O3



CM 3

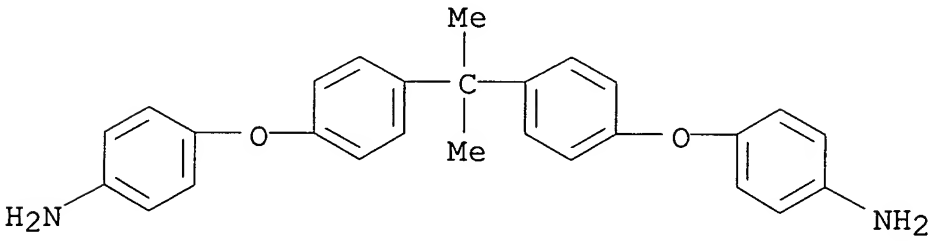
CRN 2469-55-8
CMF C10 H28 N2 O Si2



RN 359011-88-4 HCA
CN 1,2,4-Benzenetricarbonyl trichloride, polymer with 1,3-benzenedicarbonyl dichloride, 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine], 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

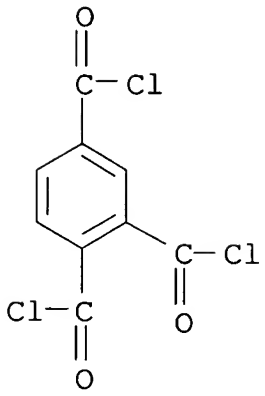
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



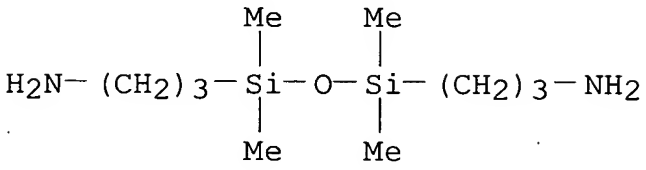
CM 2

CRN 3867-55-8
CMF C9 H3 Cl3 O3



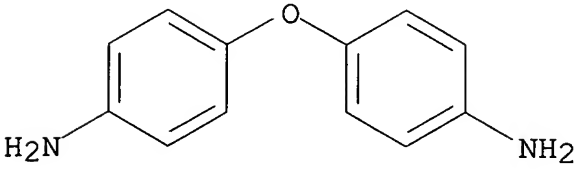
CM 3

CRN 2469-55-8
CMF C10 H28 N2 O Si2



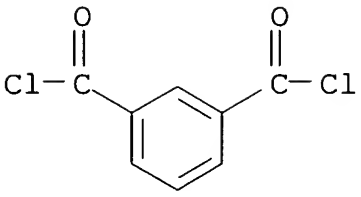
CM 4

CRN 101-80-4
CMF C12 H12 N2 O



CM 5

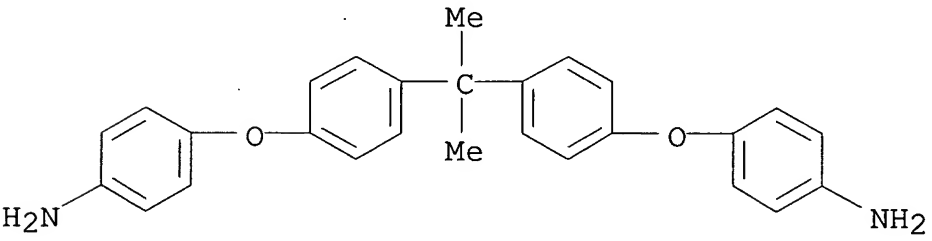
CRN 99-63-8
CMF C8 H4 Cl2 O2



RN 359011-89-5 HCA
CN 1,2,4-Benzenetricarbonyl trichloride, polymer with 1,3-benzenedicarbonyl dichloride, 5,5'-carbonylbis[1,3-isobenzofurandione], 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine], 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

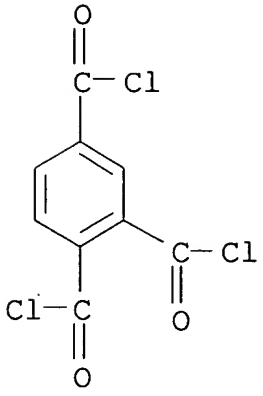
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



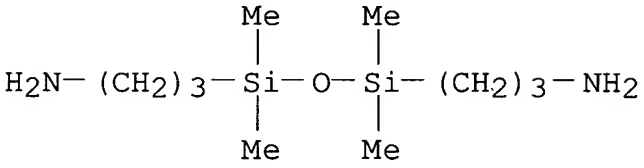
CM 2

CRN 3867-55-8
CMF C9 H3 Cl3 O3



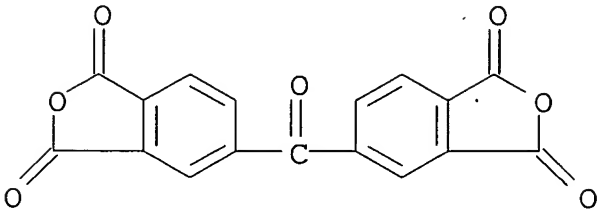
CM 3

CRN 2469-55-8
CMF C10 H28 N2 O Si2



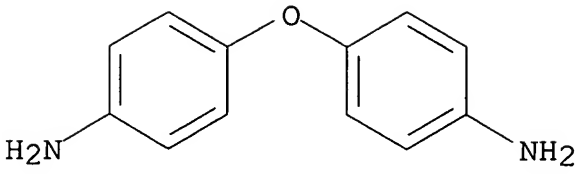
CM 4

CRN 2421-28-5
CMF C17 H6 O7



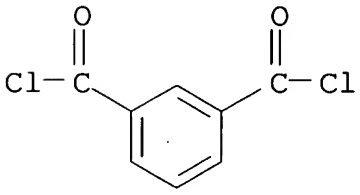
CM 5

CRN 101-80-4
CMF C12 H12 N2 O



CM 6

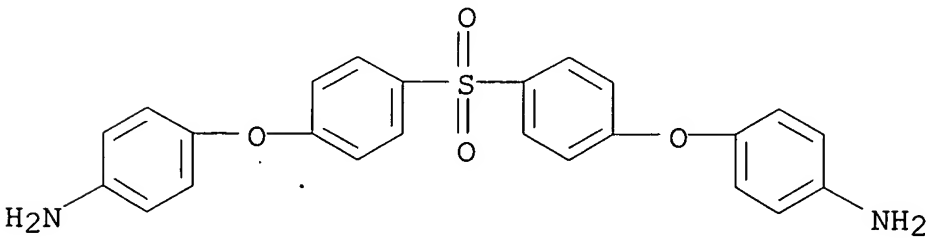
CRN 99-63-8
CMF C8 H4 Cl2 O2



RN 359011-90-8 HCA
CN 1,2,4-Benzenetricarbonyl trichloride, polymer with 4,4'-oxybis[benzenamine], 4,4'-[sulfonylbis(4,1-phenyleneoxy)]bis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

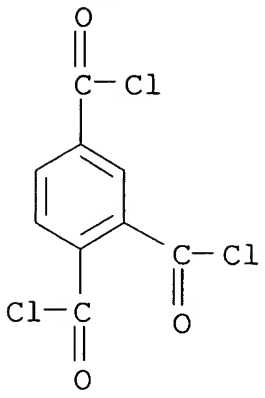
CM 1

CRN 13080-89-2
CMF C24 H20 N2 O4 S



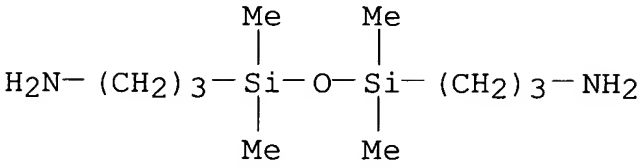
CM 2

CRN 3867-55-8
CMF C9 H3 Cl3 O3



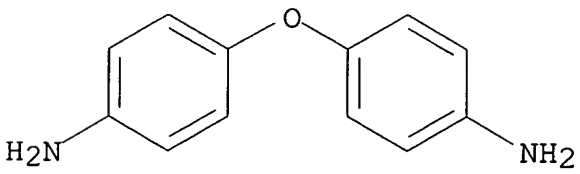
CM 3

CRN 2469-55-8
CMF C10 H28 N2 O Si2



CM 4

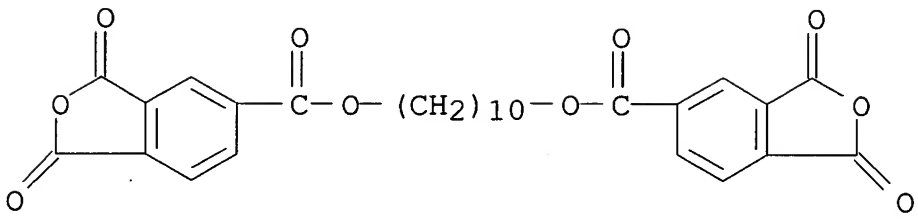
CRN 101-80-4
CMF C12 H12 N2 O



RN 359011-91-9 HCA
CN 5-Isobenzofurancarboxylic acid, 1,3-dihydro-1,3-dioxo-, 1,10-decanediyl ester, polymer with 5,5'-carbonylbis[1,3-isobenzofurandione], 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine], 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

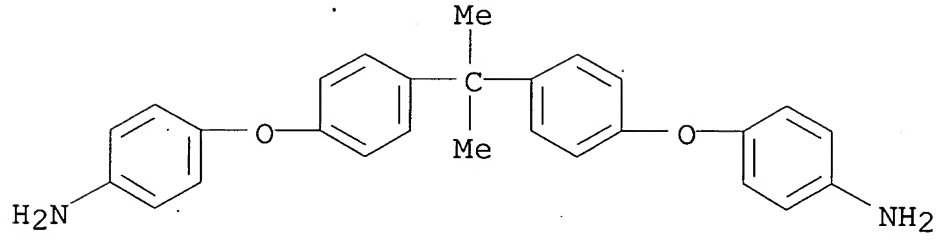
CM 1

CRN 123046-43-5
CMF C28 H26 O10



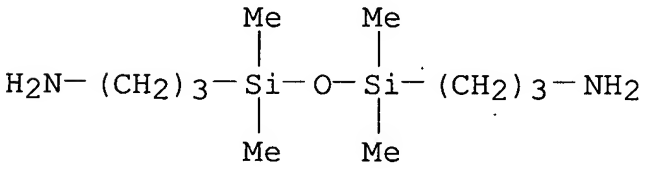
CM 2

CRN 13080-86-9
CMF C27 H26 N2 O2



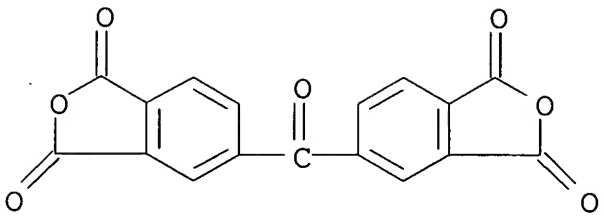
CM 3

CRN 2469-55-8
CMF C10 H28 N2 O Si2



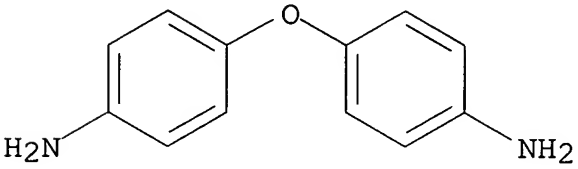
CM 4

CRN 2421-28-5
CMF C17 H6 O7



CM 5

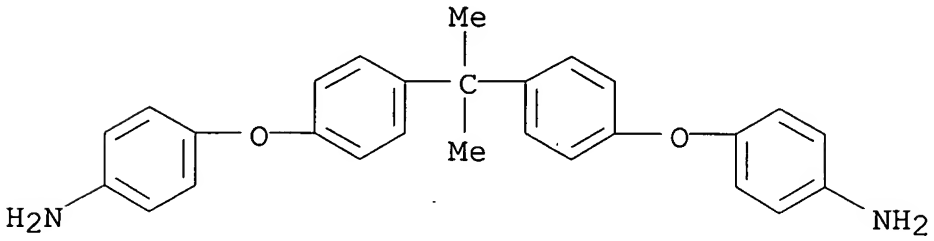
CRN 101-80-4
CMF C12 H12 N2 O



RN 359011-92-0 HCA
CN 1,3-Benzenedicarboxylic acid, dihydrazide, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine], 5,5'-oxybis[1,3-isobenzofurandione], 5,5'-sulfonylbis[1,3-isobenzofurandione] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

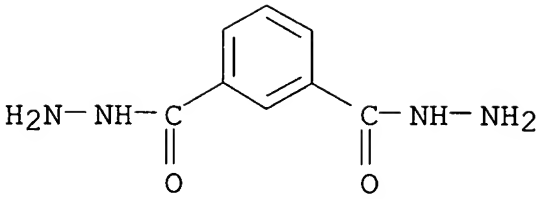
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



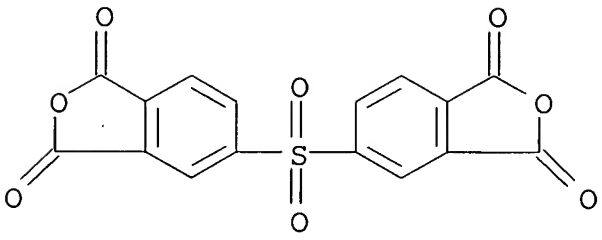
CM 2

CRN 2760-98-7
CMF C8 H10 N4 O2



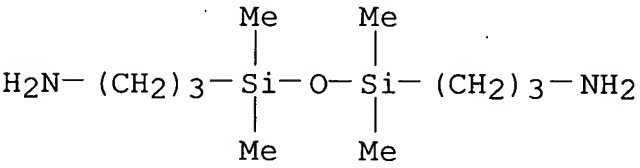
CM 3

CRN 2540-99-0
CMF C16 H6 O8 S



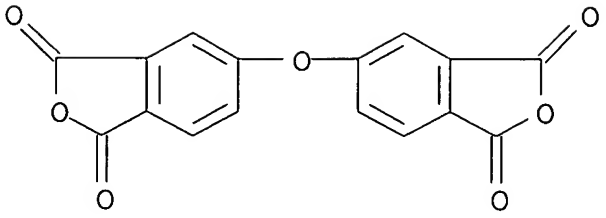
CM 4

CRN 2469-55-8
CMF C10 H28 N2 O Si2



CM 5

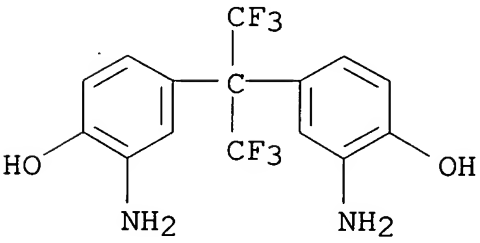
CRN 1823-59-2
CMF C16 H6 O7



RN 359011-93-1 HCA
CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine], 5,5'-sulfonylbis[1,3-isobenzofurandione], 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] and trimethoxy[3-(oxiranylmethoxy)propyl]silane (9CI) (CA INDEX NAME)

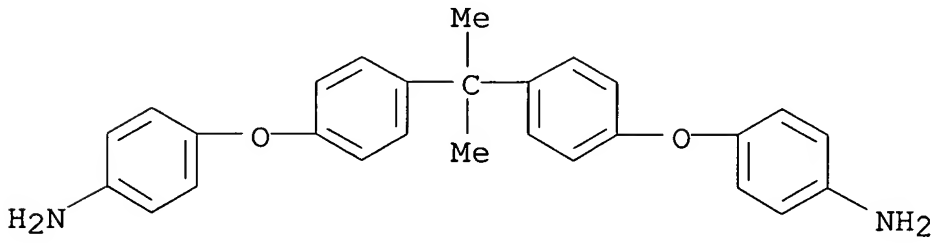
CM 1

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



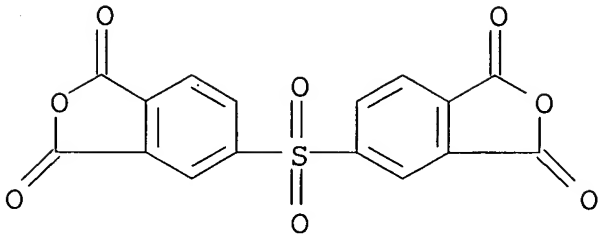
CM 2

CRN 13080-86-9
CMF C27 H26 N2 O2



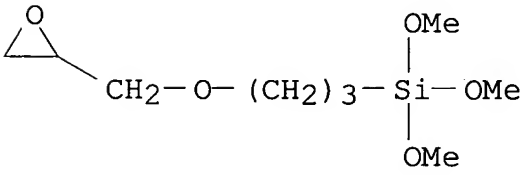
CM 3

CRN 2540-99-0
CMF C16 H6 O8 S



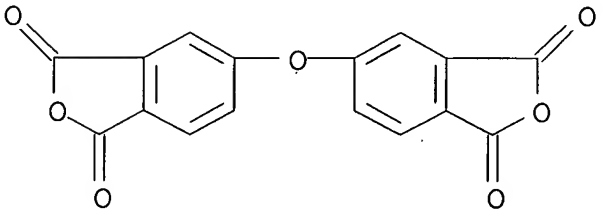
CM 4

CRN 2530-83-8
CMF C9 H20 O5 Si



CM 5

CRN 1823-59-2
CMF C16 H6 O7



IC ICM C08L101-00
ICS C08L079-08; H01L021-768; H01L021-312; H01L023-14
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 76
IT **Polyamic acids**
(resin compn. and heat-resistant resin paste and semiconductor device using them and method for manuf. thereof)
IT **110636-60-7P,** 2,2-Bis[4-(4-aminophenoxy)phenyl]propane-trimellitic acid chloride copolymer

(resin compn. and heat-resistant resin paste and semiconductor device using them and method f or manuf. thereof)

IT **69577-60-2P 82530-51-6P 87432-14-2P 217180-63-7P 217180-69-3P 359011-86-2P 359011-87-3P 359011-88-4P 359011-89-5P 359011-90-8P 359011-91-9P 359011-92-0P 359011-93-1P**
(resin compn. and heat-resistant resin paste and semiconductor device using them and method for manuf. thereof)

L19 ANSWER 4 OF 13 HCA COPYRIGHT 2004 ACS on STN

133:224304 Method for covering lattice-type grooves on substrates with heat-resistant polymers. Sakata, Toichi; Nishizawa, Hiroshi (Hitachi Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000248177 A2 20000912, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-55137 19990303.

AB The method comprises (A) coating the grooves in one direction with solns. or pastes of heat-resistant polymers and (B) coating the grooves in the perpendicular direction by flowing the solns. or pastes. Thus, a Si wafer was screen-printed with a **.gamma.-butyrolactone** soln. contg. 2,2-bis[4-(4-aminophenoxy)phenyl]propane (I)-bis(3,4-dicarboxyphenyl)sulfone dianhydride-1,3-diamino-5-carboxybenzene copolymer (40% solids) 300, I-bis(3,4-dicarboxyphenyl)ether dianhydride copolymer (30% solids) 200, and .gamma.-glycidoxypropyltrimethoxysilane 27 g and heated to give a test piece showing no bleed out and good appearance.

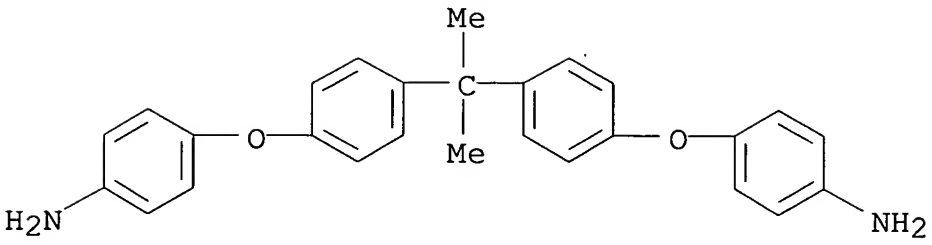
IT **69577-60-2P**, 2,2-Bis[4-(4-aminophenoxy)phenyl]propane-3,3',4,4'-diphenyl ether tetracarboxylic dianhydride copolymer **217180-71-7P 292149-00-9P**
(coating of lattice-type grooves on substrates with heat-resistant polymers by screen printing)

RN 69577-60-2 HCA

CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

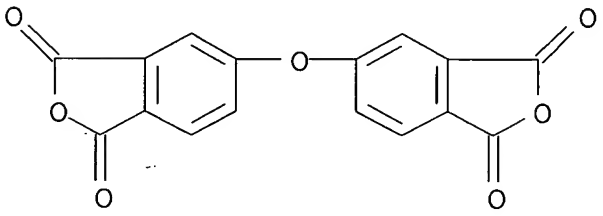
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



CM 2

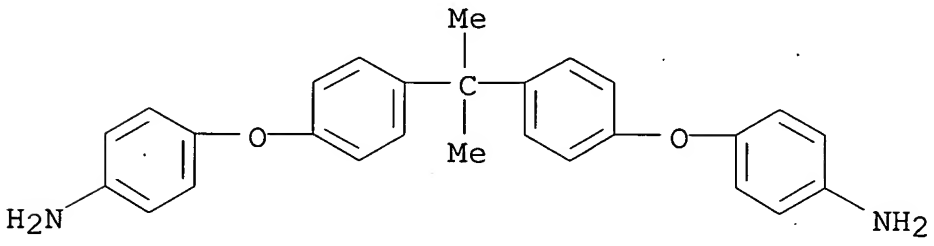
CRN 1823-59-2
CMF C16 H6 O7



RN 217180-71-7 HCA
CN Benzoic acid, 3,5-diamino-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine] and 5,5'-sulfonylbis[1,3-isobenzofurandione] (9CI) (CA INDEX NAME)

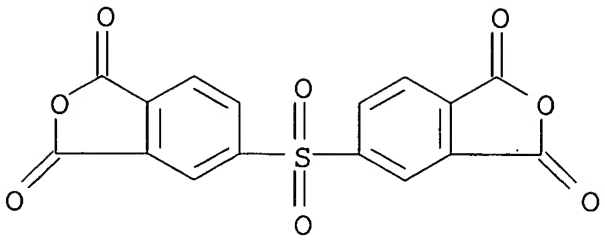
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



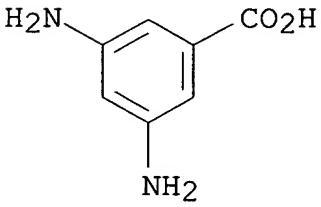
CM 2

CRN 2540-99-0
CMF C16 H6 O8 S



CM 3

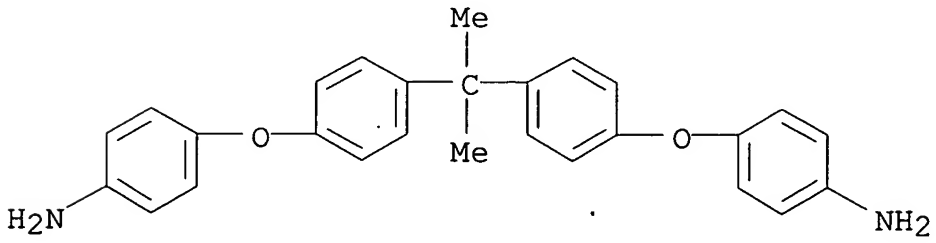
CRN 535-87-5
CMF C7 H8 N2 O2



RN 292149-00-9 HCA
CN Benzoic acid, 3,5-diamino-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine], 5,5'-oxybis[1,3-isobenzofurandione], 5,5'-sulfonylbis[1,3-isobenzofurandione] and trimethoxy[3-(oxiranylmethoxy)propyl]silane (9CI) (CA INDEX NAME)

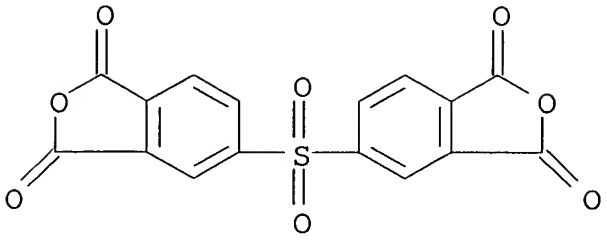
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



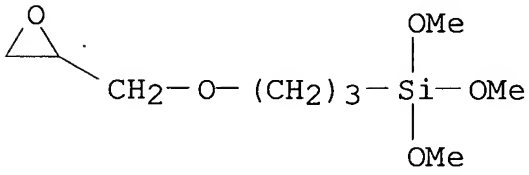
CM 2

CRN 2540-99-0
CMF C16 H6 O8 S



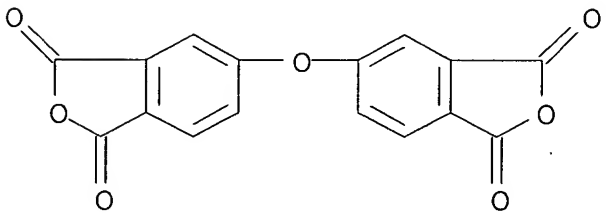
CM 3

CRN 2530-83-8
CMF C9 H20 O5 Si



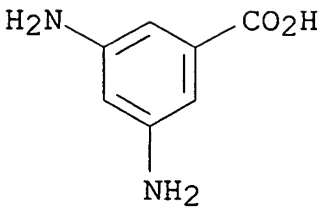
CM 4

CRN 1823-59-2
CMF C16 H6 O7

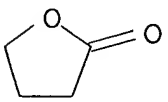


CM 5

CRN 535-87-5
CMF C7 H8 N2 O2



IT **96-48-0, .gamma.-Butyrolactone**
(solvent; coating of lattice-type grooves on substrates with heat-resistant polymers by screen printing)
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)

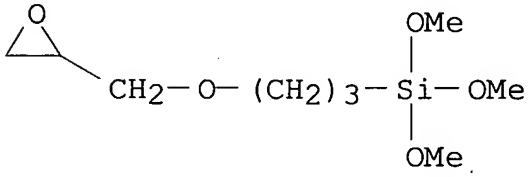


IC ICM C08L079-08
ICS B05D005-06; C08G073-10; C09D179-02
CC 42-2 (Coatings, Inks, and Related Products)
Section cross-reference(s): 76
IT **69577-60-2P**, 2,2-Bis[4-(4-aminophenoxy)phenyl]propane-3,3',4,4'-diphenyl ether tetracarboxylic dianhydride copolymer **217180-71-7P 292149-00-9P**
(coating of lattice-type grooves on substrates with heat-resistant polymers by screen printing)
IT **96-48-0, .gamma.-Butyrolactone**
(solvent; coating of lattice-type grooves on substrates with heat-resistant polymers by screen printing)

L19 ANSWER 5 OF 13 HCA COPYRIGHT 2004 ACS on STN
131:132329 Secondary nonaqueous electrolyte batteries and their manufacture. Hamamoto, Shiro; Uno, Keiichi; Inukai, Tadashi; Kurita, Tomoharu (Toyobo Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11224671 A2 19990817 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-27359 19980209.
AB The batteries use electrode binders contg. a resin having reactive functional groups and a coupling agent contg. functional groups reactive with the functional groups of the resin. The resin is preferably polyamide polyimide. The batteries are prepd. by mixing and dispersing an electrode active mass and the binder in N-Me-2-pyrrolidone, **.gamma.-butyrolactone**, cyclohexane, or xylene; applying the paste on metal foils, and drying to form an electrode.
IT **2530-83-8**, .gamma.-Glycidoxypropyl trimethoxysilane

234448-21-6 234449-75-3
(binders contg. resins and coupling agents having reactive functional groups for battery electrodes)

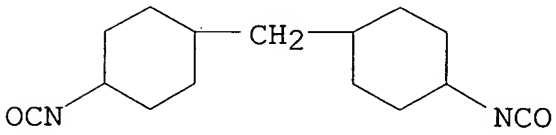
RN 2530-83-8 HCA
CN Silane, trimethoxy[3-(oxiranylmethoxy)propyl]- (9CI) (CA INDEX NAME)



RN 234448-21-6 HCA
CN Decanedioic acid, polymer with 1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxylic acid and 1,1'-methylenebis[4-isocyanatocyclohexane] (9CI) (CA INDEX NAME)

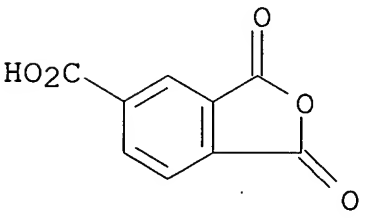
CM 1

CRN 5124-30-1
CMF C15 H22 N2 O2



CM 2

CRN 552-30-7
CMF C9 H4 O5



CM 3

CRN 111-20-6

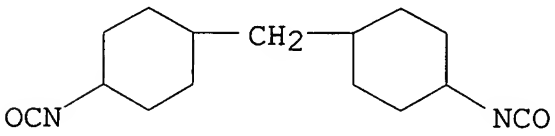
CMF C10 H18 O4

$HO_2C-(CH_2)_8-CO_2H$

RN 234449-75-3 HCA
CN Decanedioic acid, polymer with 1,3-dihydro-1,3-dioxo-5-isobenzofurancarboxylic acid, 1,1'-methylenebis[4-isocyanatocyclohexane] and trimethoxy[3-(oxiranylmethoxy)propyl]silane (9CI) (CA INDEX NAME)

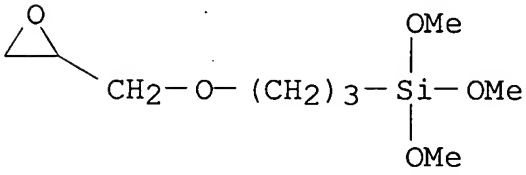
CM 1

CRN 5124-30-1
CMF C15 H22 N2 O2



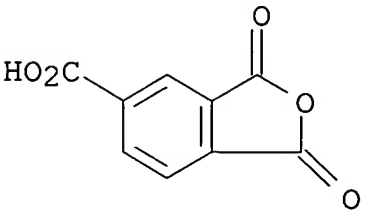
CM 2

CRN 2530-83-8
CMF C9 H20 O5 Si



CM 3

CRN 552-30-7
CMF C9 H4 O5



CM 4

CRN 111-20-6
CMF C10 H18 O4

$HO_2C-(CH_2)_8-CO_2H$

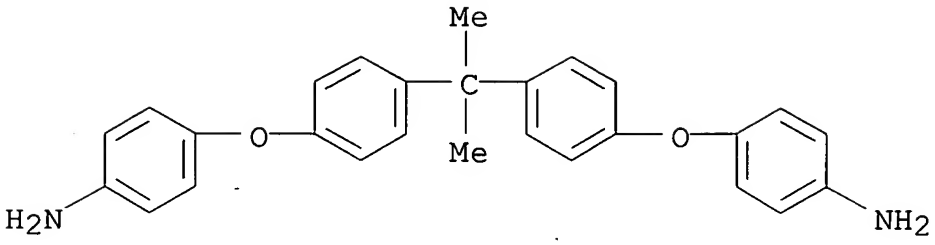
IC ICM H01M004-62
ICS H01M004-02; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT **2530-83-8**, .gamma.-Glycidoxypropyl trimethoxysilane
234448-21-6 234449-75-3
(binders contg. resins and coupling agents having reactive functional groups for battery electrodes)

L19 ANSWER 6 OF 13 HCA COPYRIGHT 2004 ACS on STN
130:319655 Heat-resistant resin paste, film formation method, and electronic component and semiconductor device. Hirai, Keizo; Sakata, Toichi; Nishizawa, Hiroshi; Hirata, Tomohiro (Hitachi Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11100517 A2 19990413 Heisei, 17 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-264446 19970929.
AB The paste has complex viscosity 100-10,000 Pa-s at frequency 1 rad/s. The film is manufd. by screen printing of the paste using a mesh having wire diam. .ltoreq.25 .mu.m and mesh size .gtoreq.250 and a resin squeegee having rubber hardness 70-90.degree. or using a meshless metal plate and a resin squeegee having rubber hardness .gtoreq.90.degree. or a metal squeegee. The electronic component and the semiconductor device having the films are also claimed. The paste shows improved printing properties and provides thick film with high resoln.
IT **69577-60-2P 223532-81-8P**, 2,2-Bis[4-(4-aminophenoxy)phenyl]propane-bis(3,4-dicarboxyphenyl)sulfone dianhydride-1,3-diamino-5-carboxy benzene-.gamma.-glycidoxypropyltrimethoxysilane copolymer **223532-82-9P**
(electronic component and semiconductor device having film prepd. by screen printing of heat-resistant resin paste contg.)
RN 69577-60-2 HCA
CN 1,3-Isobenzofurandione, 5,5'-oxybis-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

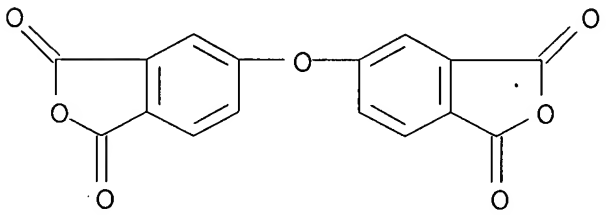
CRN 13080-86-9

CMF C27 H26 N2 O2



CM 2

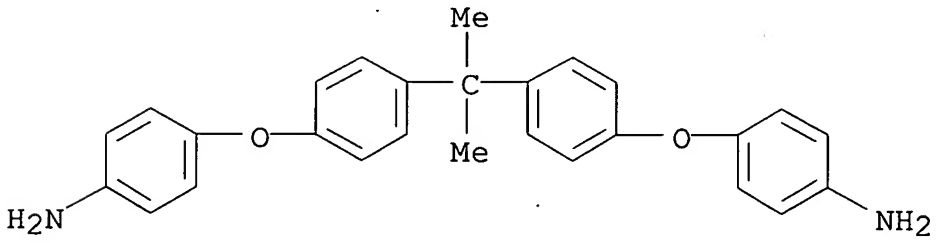
CRN 1823-59-2
CMF C16 H6 O7



RN 223532-81-8 HCA
CN Benzoic acid, 3,5-diamino-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine], 5,5'-sulfonylbis[1,3-isobenzofurandione] and trimethoxy[3-(oxiranylmethoxy)propyl]silane (9CI) (CA INDEX NAME)

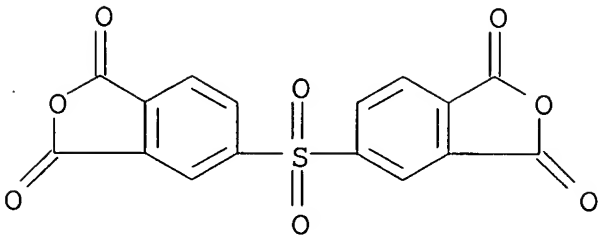
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



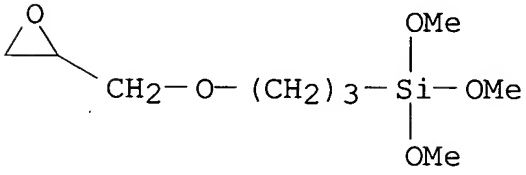
CM 2

CRN 2540-99-0
CMF C16 H6 O8 S



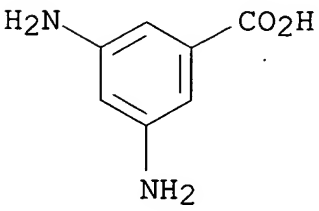
CM 3

CRN 2530-83-8
CMF C9 H20 O5 Si



CM 4

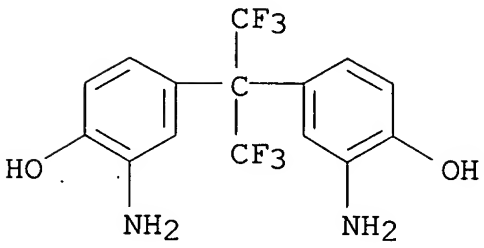
CRN 535-87-5
CMF C7 H8 N2 O2



RN 223532-82-9 HCA
CN 1,3-Isobenzofurandione, 5,5'-sulfonylbis-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine], 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[2-aminophenol] and trimethoxy[3-(oxiranylmethoxy)propyl]silane (9CI) (CA INDEX NAME)

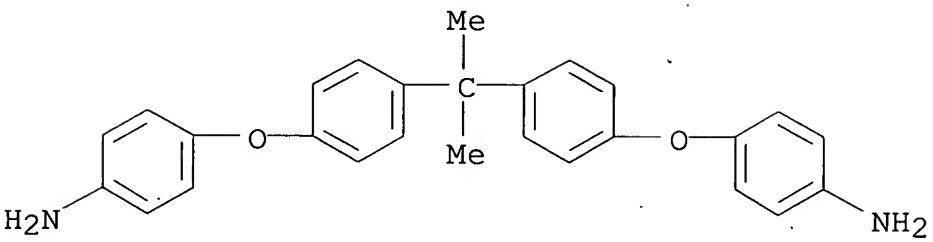
CM 1

CRN 83558-87-6
CMF C15 H12 F6 N2 O2



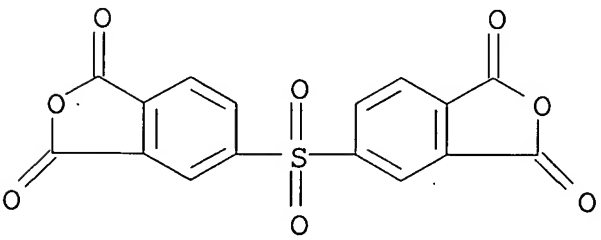
CM 2

CRN 13080-86-9
CMF C27 H26 N2 O2



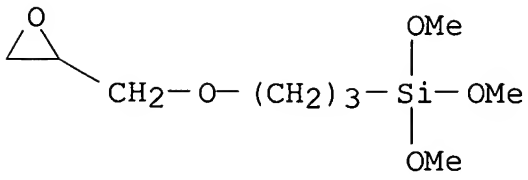
CM 3

CRN 2540-99-0
CMF C16 H6 O8 S

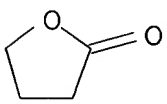


CM 4

CRN 2530-83-8
CMF C9 H20 O5 Si



IT **96-48-0, .gamma.-Butyrolactone**
(solvent; electronic component and semiconductor device having film prepd. by screen printing of heat-resistant resin paste contg.)
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IC ICM C08L101-12
ICS B41F017-36; B41M001-10; C08L063-00; C08L071-10; C08L079-08
CC 76-14 (Electric Phenomena)
Section cross-reference(s): 38
IT 101-68-8DP, 4,4'-Diphenylmethane diisocyanate, polymer with carboxy-terminated nitrile rubber, carboxy-terminated dimethylsiloxane, and trimellitic anhydride 552-30-7DP, Trimellitic anhydride, polymer with carboxy-terminated nitrile rubber, carboxy-terminated dimethylsiloxane, and MDI 58130-04-4DP, BY 16-750, polymer with carboxy-terminated nitrile rubber, MDI, and trimellitic anhydride 69572-56-1P **69577-60-2P** **223532-81-8P**, 2,2-Bis[4-(4-aminophenoxy)phenyl]propane-bis(3,4-dicarboxyphenyl)sulfone dianhydride-1,3-diamino-5-carboxy benzene-.gamma.-glycidoxypropyltrimethoxysilane copolymer **223532-82-9P**
(electronic component and semiconductor device having film prepd. by screen printing of heat-resistant resin paste contg.)
IT **96-48-0, .gamma.-Butyrolactone**
111-76-2, Butylcellosolve 112-49-2, Triethylene glycol dimethyl ether
(solvent; electronic component and semiconductor device having film prepd. by screen printing of heat-resistant resin paste contg.)

L19 ANSWER 7 OF 13 HCA COPYRIGHT 2004 ACS on STN
128:174159 Photosensitive resin composition and pattern formation using it. Makabe, Hiroaki; Takeda, Naoshige; Takeda, Toshio (Sumitomo Bakelite Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 10020499 A2 19980123 Heisei, 26 pp. (Japanese). CODEN: JKXXAF. APPLICATION:

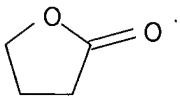
JP 1996-176154 19960705.

AB The title compn. contains (a) a **polyamic acid** ester [COR1(CO2R3)2CONHR2NH]x[COR1(CO2R3)(CO2R4)CONHR2NH]y[COR1(CO2R4)2CONHR2NH]z [R1 = tetravalent arom. residue; R2 = divalent org. group with mol. wt .ltoreq.160 (in the case of a mixt. of .gtoreq.2 R2 groups the av. mol. wt. is used); R3 = R5(OCOCR6:CH2)p; R4 = R5(OCOCR6:CH2)p (R5 = C2-6 org. group; R6 = H or Me; p = 1-5), Me, Et; 0 < x, y < 100, 0 < z < 80, x + y + z = 100], (b) an org. Si compd. (R10O)3-lSiR9l(CH2)2R8NHCOR7CO2H (R7, R8 = divalent org. group; R9, R10 = monovalent org. group; l = 0-2), and (c) a photopolymn. initiator and/or a photosensitizer. The compn. is coated on a substrate, dried using a hot plate at 80-130.degree., exposed to light through a mask, and developed with a cyclic ketone-based org. solvent to remove the unexposed area to form a high resoln. pattern. The compn. shows good adhesion to substrates and provides a high resoln. polyimide pattern.

IT **96-48-0**
(cyclic ketone developer for photoresist compn. contg. **polyamic acid** and org. silicon compd.)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)

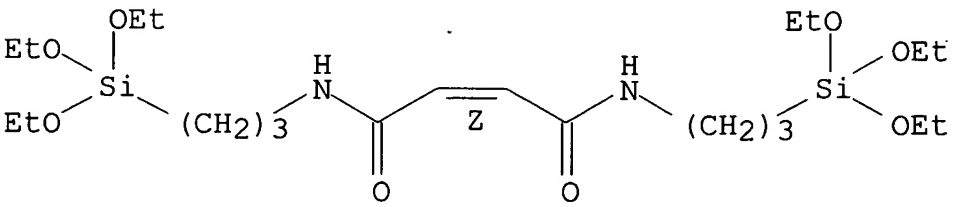


IT **18957-27-2 203071-91-4**
(photoresist compn. contg. **polyamic acid** and org. silicon compd.)

RN 18957-27-2 HCA

CN 2-Butenediamide, N,N'-bis[3-(triethoxysilyl)propyl]-, (Z)- (9CI) (CA INDEX NAME)

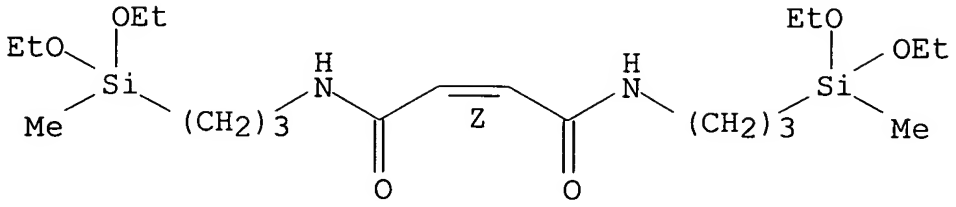
Double bond geometry as shown.



RN 203071-91-4 HCA

CN 2-Butenediamide, N,N'-bis[3-(diethoxymethylsilyl)propyl]-, (Z)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



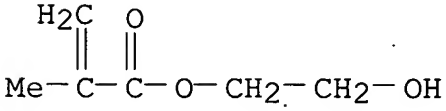
IT **193225-77-3P**, 3,3',4,4'-Benzophenonetetracarboxylic acid dianhydride-p-xylene-2,5-diamine copolymer ester with 2-hydroxyethyl methacrylate **193293-49-1P**, 3,3',4,4'-Benzophenonetetracarboxylic acid dianhydride-p-xylene-2,5-diamine copolymer ester with glycerol dimethacrylate and methanol **193293-50-4P**, 3,3',4,4'-Benzophenonetetracarboxylic acid dianhydride-p-phenylenediamine copolymer ester with glycerol dimethacrylate and methanol **193293-51-5P**, 3,3',4,4'-Benzophenonetetracarboxylic acid dianhydride-bis[4-(4-aminophenoxy)phenyl]sulfone-p-phenylenediamine copolymer ester with glycerol dimethacrylate and methanol **193293-52-6P**, 3,3',4,4'-Benzophenonetetracarboxylic acid dianhydride-1,3-bis(3-aminopropyl)tetramethyldisiloxane-4,4'-diaminodiphenyl ether-p-xylene-2,5-diamine copolymer ester with glycerol dimethacrylate and methanol **193293-53-7P**, 3,3',4,4'-Benzophenonetetracarboxylic acid dianhydride-4,4'-diaminodiphenyl ether-p-xylene-2,5-diamine copolymer ester with glycerol dimethacrylate and methanol
(photoresist compn. contg. **polyamic acid** and org. silicon compd.)

RN 193225-77-3 HCA

CN 1,3-Isobenzofurandione, 5,5'-carbonylbis-, polymer with 2,5-dimethyl-1,4-benzenediamine, 2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl ester (9CI) (CA INDEX NAME)

CM 1

CRN 868-77-9
CMF C6 H10 O3

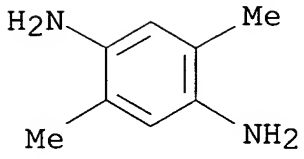


CM 2

CRN 141504-55-4
CMF (C17 H6 O7 . C8 H12 N2)x
CCI PMS

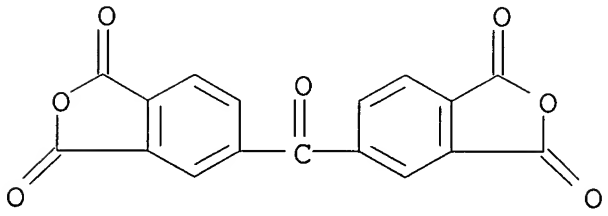
CM 3

CRN 6393-01-7
CMF C8 H12 N2



CM 4

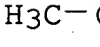
CRN 2421-28-5
CMF C17 H6 O7



RN 193293-49-1 HCA
CN 1,3-Isobenzofurandione, 5,5'-carbonylbis-, polymer with 2,5-dimethyl-1,4-benzenediamine, methyl ester, ester with 1,2,3-propanetriol bis(2-methyl-2-propenoate) (9CI) (CA INDEX NAME)

CM 1

CRN 67-56-1
CMF C H4 O



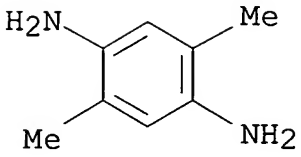
CM 2

CRN 141504-55-4
CMF (C17 H6 O7 . C8 H12 N2)x

CCI PMS

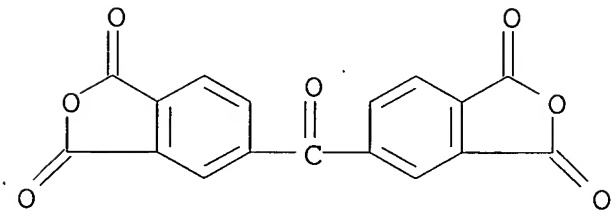
CM 3

CRN 6393-01-7
CMF C8 H12 N2



CM 4

CRN 2421-28-5
CMF C17 H6 O7

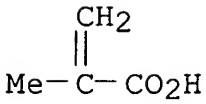


CM 5

CRN 28497-59-8
CMF C11 H16 O5
CCI IDS

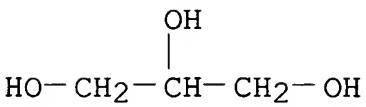
CM 6

CRN 79-41-4
CMF C4 H6 O2



CM 7

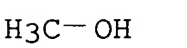
CRN 56-81-5
CMF C3 H8 O3



RN 193293-50-4 HCA
CN 1,3-Isobenzofurandione, 5,5'-carbonylbis-, polymer with 1,4-benzenediamine, methyl ester, ester with 1,2,3-propanetriol bis(2-methyl-2-propenoate) (9CI) (CA INDEX NAME)

CM 1

CRN 67-56-1
CMF C H4 O

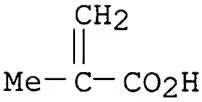


CM 2

CRN 28497-59-8
CMF C11 H16 O5
CCI IDS

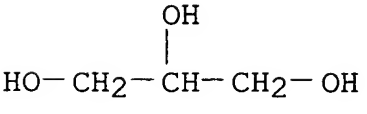
CM 3

CRN 79-41-4
CMF C4 H6 O2



CM 4

CRN 56-81-5
CMF C3 H8 O3

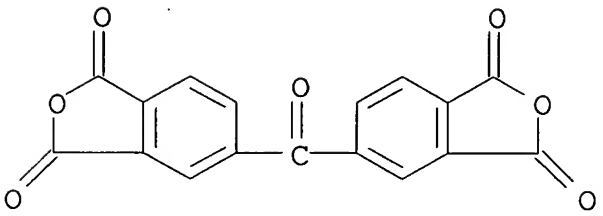


CM 5

CRN 25038-83-9
CMF (C17 H6 O7 . C6 H8 N2)x
CCI PMS

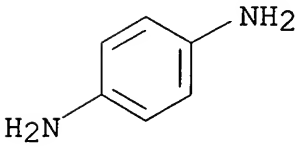
CM 6

CRN 2421-28-5
CMF C17 H6 O7



CM 7

CRN 106-50-3
CMF C6 H8 N2



RN 193293-51-5 HCA
CN 1,3-Isobenzofurandione, 5,5'-carbonylbis-, polymer with 1,4-benzenediamine and 4,4'-[sulfonylbis(4,1-phenyleneoxy)]bis[benzenamine], methyl ester, ester with 1,2,3-propanetriol bis(2-methyl-2-propenoate) (9CI) (CA INDEX NAME)

CM 1

CRN 67-56-1
CMF C H4 O

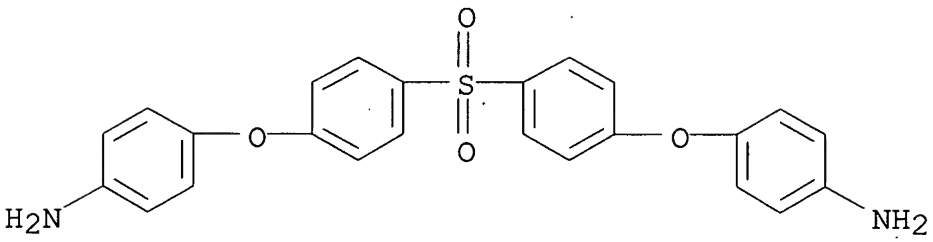
H_3C-OH

CM 2

CRN 129719-25-1
CMF (C24 H20 N2 O4 S . C17 H6 O7 . C6 H8 N2)x
CCI PMS

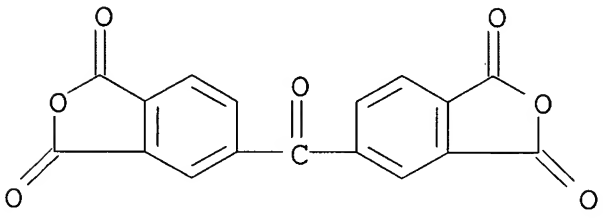
CM 3

CRN 13080-89-2
CMF C24 H20 N2 O4 S



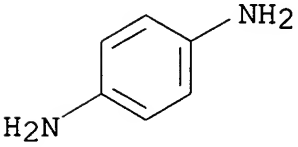
CM 4

CRN 2421-28-5
CMF C17 H6 O7



CM 5

CRN 106-50-3
CMF C6 H8 N2

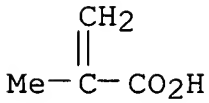


CM 6

CRN 28497-59-8
CMF C11 H16 O5
CCI IDS

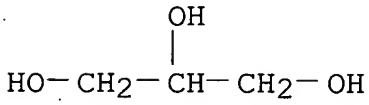
CM 7

CRN 79-41-4
CMF C4 H6 O2



CM 8

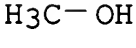
CRN 56-81-5
CMF C3 H8 O3



RN 193293-52-6 HCA
CN 1,3-Isobenzofurandione, 5,5'-carbonylbis-, polymer with 2,5-dimethyl-1,4-benzenediamine, 4,4'-oxybis[benzenamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine], methyl ester, ester with 1,2,3-propanetriol bis(2-methyl-2-propenoate) (9CI) (CA INDEX NAME)

CM 1

CRN 67-56-1
CMF C H4 O



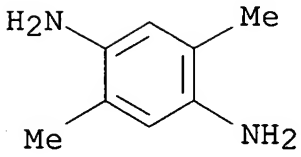
CM 2

CRN 193215-40-6
CMF (C17 H6 O7 . C12 H12 N2 O . C10 H28 N2 O Si2 . C8 H12 N2)x

CCI PMS

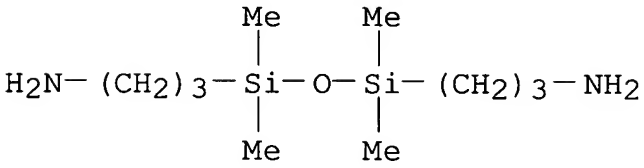
CM 3

CRN 6393-01-7
CMF C8 H12 N2



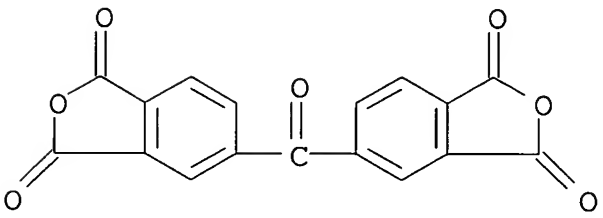
CM 4

CRN 2469-55-8
CMF C10 H28 N2 O Si2



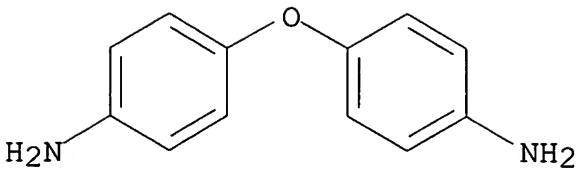
CM 5

CRN 2421-28-5
CMF C17 H6 O7



CM 6

CRN 101-80-4
CMF C12 H12 N2 O

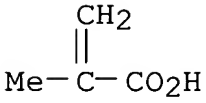


CM 7

CRN 28497-59-8
CMF C11 H16 O5
CCI IDS

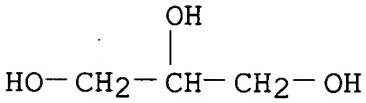
CM 8

CRN 79-41-4
CMF C4 H6 O2



CM 9

CRN 56-81-5
CMF C3 H8 O3



RN 193293-53-7 HCA
CN 1,3-Isobenzofurandione, 5,5'-carbonylbis-, polymer with 2,5-dimethyl-1,4-benzenediamine and 4,4'-oxybis[benzenamine], methyl ester, ester with 1,2,3-propanetriol bis(2-methyl-2-propenoate) (9CI) (CA INDEX NAME)

CM 1

CRN 67-56-1
CMF C H4 O

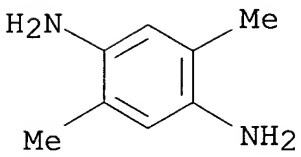
H_3C-OH

CM 2

CRN 193215-43-9
CMF (C17 H6 O7 . C12 H12 N2 O . C8 H12 N2)x
CCI PMS

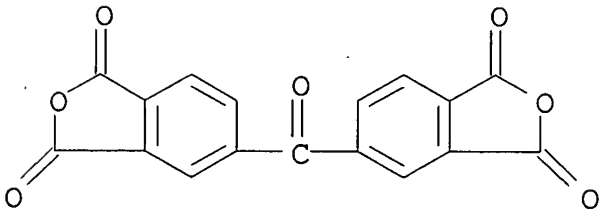
CM 3

CRN 6393-01-7
CMF C8 H12 N2



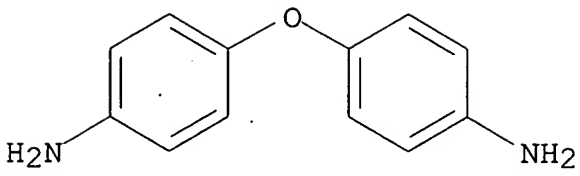
CM 4

CRN 2421-28-5
CMF C17 H6 O7



CM 5

CRN 101-80-4
CMF C12 H12 N2 O

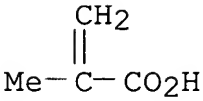


CM 6

CRN 28497-59-8
CMF C11 H16 O5
CCI IDS

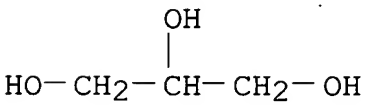
CM 7

CRN 79-41-4
CMF C4 H6 O2



CM 8

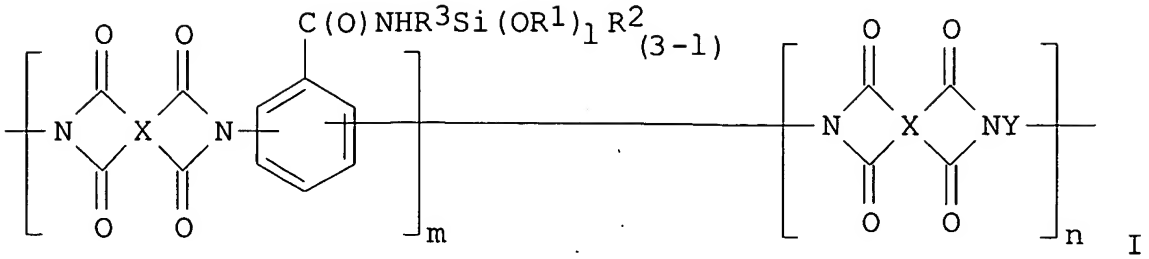
CRN 56-81-5
CMF C3 H8 O3



IC ICM G03F007-038
ICS G03F007-038; C08G073-10; G03F007-028; G03F007-075; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Rereprographic Processes)
ST photoresist **polyamic acid** ester; silicon amide compd photoresist; polyimide resist pattern formation
IT **Polyamic acids**
(esters, arom.; photoresist compn. contg. **polyamic acid** and org. silicon compd.)
IT Photoresists
(photoresist compn. contg. **polyamic acid** and org. silicon compd.)

IT **96-48-0**
(cyclic ketone developer for photoresist compn. contg. **polyamic acid** and org. silicon compd.)
IT 120-92-3, Cyclopentanone
(developer; cyclic ketone developer for photoresist compn. contg. **polyamic acid** and org. silicon compd.)
IT **18957-27-2 203071-91-4**
(photoresist compn. contg. **polyamic acid** and org. silicon compd.)
IT **193225-77-3P**, 3,3',4,4'-Benzophenonetetracarboxylic acid dianhydride-p-xylene-2,5-diamine copolymer ester with 2-hydroxyethyl methacrylate **193293-49-1P**, 3,3',4,4'-Benzophenonetetracarboxylic acid dianhydride-p-xylene-2,5-diamine copolymer ester with glycerol dimethacrylate and methanol **193293-50-4P**, 3,3',4,4'-Benzophenonetetracarboxylic acid dianhydride-p-phenylenediamine copolymer ester with glycerol dimethacrylate and methanol **193293-51-5P**, 3,3',4,4'-Benzophenonetetracarboxylic acid dianhydride-bis[4-(4-aminophenoxy)phenyl]sulfone-p-phenylenediamine copolymer ester with glycerol dimethacrylate and methanol **193293-52-6P**, 3,3',4,4'-Benzophenonetetracarboxylic acid dianhydride-1,3-bis(3-aminopropyl)tetramethyldisiloxane-4,4'-diaminodiphenyl ether-p-xylene-2,5-diamine copolymer ester with glycerol dimethacrylate and methanol **193293-53-7P**, 3,3',4,4'-Benzophenonetetracarboxylic acid dianhydride-4,4'-diaminodiphenyl ether-p-xylene-2,5-diamine copolymer ester with glycerol dimethacrylate and methanol
(photoresist compn. contg. **polyamic acid** and org. silicon compd.)

L19 ANSWER 8 OF 13 HCA COPYRIGHT 2004 ACS on STN
125:302316 Manufacture of solvent-soluble curable polyimides, their compositions, and protection films with improved solvent resistance. Kato, Hideto; Akiba, Hideki (Shinetsu Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 08231718 A2 19960910 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-59691 19950223.
GI



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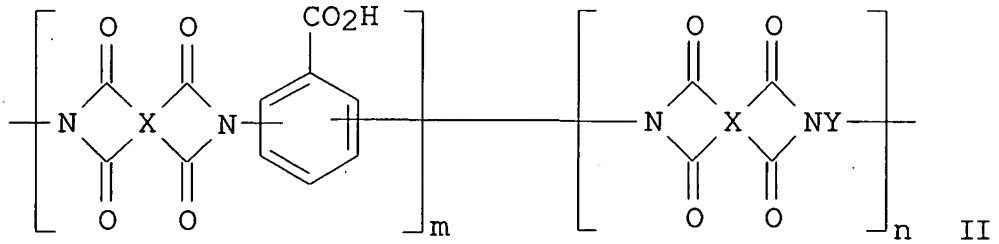


II

AB The curable polyimides exhibit av. mol. wt. (MW) 1 .times. 104 - 1.5 .times. 105 and are shown as I [R1-2 = C1-10 (substituted) monovalent hydrocarbon; R3 = C1-10 divalent org. group; X = tetravalent org. group having arom. rings or aliph. rings; Y = divalent org. group; l = 1-3; 0.03.ltoreq. m/(m + n) .ltoreq.0.5]. The compns. contain the polyimides and the resin-sol. org. solvents. Manuf. of I comprise reacting polyimides II (X, Y, m, n are same as above) and isocyanatosilanes (R1O)lR2(3-l)SiR3NCO (R1-3, l are same as above) in org. solvents. Protection films are manufd. by applying the compns. to substrates followed by heating at .ltoreq.300.degree.. Thus, a **.gamma.-butyrolactone** (III) soln. contg. 190 mmol 2,2-bis[4-(4-aminophenoxy)phenyl]propane and 10 mmol 3,5-diaminobenzoic acid was added dropwise to a reactor contg. 2,2-bis(3,4-benzenedicarboxylic anhydride) perfluoropropane and stirred, then 120 g xylene was added to the reactor and heated at 150.degree. for imidation. Then 9 mmol 3-isocyanatopropyltriethoxysilane and 0.1 g Et3N was added to 145.1 g the obtained polyimide dissolved in III, stirred at room temp. while observing CO2 generation, and put into MeOH to give a polyimide with MW 44,000, 10 g of which was dissolved to 90 g III, spin-coated to a Si wafer, and heated at 150.degree. then at 250.degree. to give a film with heat resistance 470.degree., cross-cut adhesion 0/100, and good III resistance.

IT **183241-23-8DP**, reaction products with 3-isocyanatopropyltriethoxysilane
(manuf. of solvent-sol. curable polyimides having alkoxysilyl

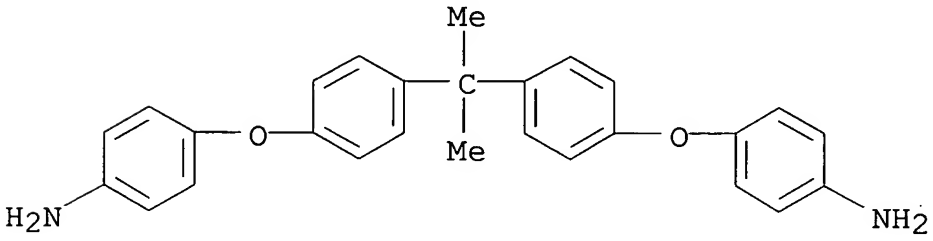
bonds for solvent- and heat-resistant protection films)

RN 183241-23-8 HCA

CN Benzoic acid, 3,5-diamino-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine] and 5,5'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[1,3-isobenzofurandione] (9CI) (CA INDEX NAME)

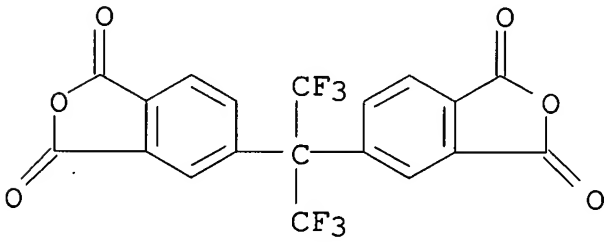
CM 1

CRN 13080-86-9
CMF C27 H26 N2 O2



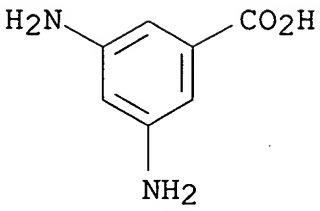
CM 2

CRN 1107-00-2
CMF C19 H6 F6 O6



CM 3

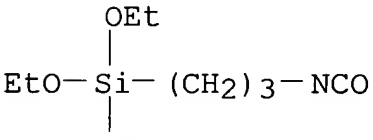
CRN 535-87-5
CMF C7 H8 N2 O2



IT **24801-88-5DP**, 3-Isocyanatopropyltriethoxysilane, reaction products with polyimides **33491-28-0DP**, 3-Isocyanatopropylmethyldiethoxysilane, reaction products with polyimides **183241-24-9DP**, reaction products with 3-isocyanatopropylmethyldiethoxysilane **183241-25-0DP**, reaction products with 3-isocyanatopropylmethyldiethoxysilane (manuf. of solvent-sol. curable polyimides having urethane and alkoxysilyl bonds and solvent- and heat-resistant protection films)

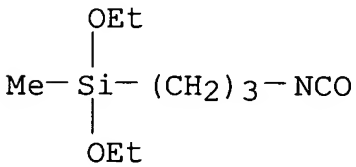
RN 24801-88-5 HCA

CN Silane, triethoxy(3-isocyanatopropyl)- (9CI) (CA INDEX NAME)



RN 33491-28-0 HCA

CN Silane, diethoxy(3-isocyanatopropyl)methyl- (9CI) (CA INDEX NAME)



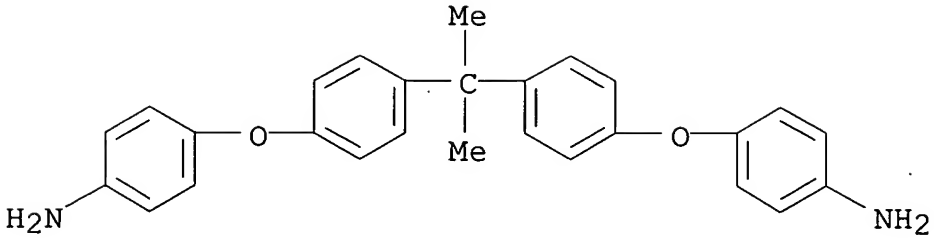
RN 183241-24-9 HCA

CN Benzoic acid, 3,5-diamino-, polymer with 4,4'-[(1-methylethylidene)bis(4,1-phenyleneoxy)]bis[benzenamine], 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] and 5,5'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[1,3-isobenzofurandione] (9CI) (CA INDEX NAME)

CM 1

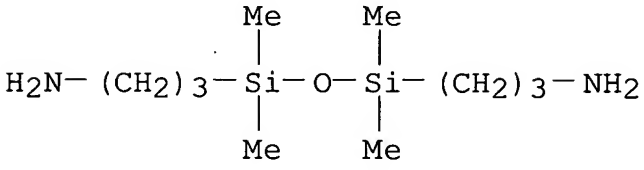
CRN 13080-86-9

CMF C27 H26 N2 O2



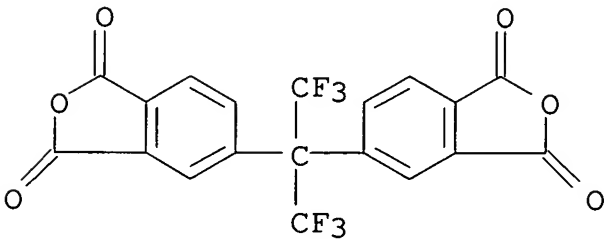
CM 2

CRN 2469-55-8
CMF C10 H28 N2 O Si2



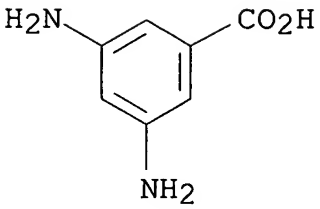
CM 3

CRN 1107-00-2
CMF C19 H6 F6 O6



CM 4

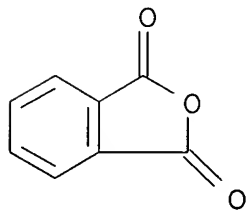
CRN 535-87-5
CMF C7 H8 N2 O2



RN 183241-25-0 HCA
CN Benzoic acid, 3,5-diamino-, polymer with 4,4'-oxybis[benzenamine], oxybis[1,3-isobenzofurandione], 1,1'-oxybis[2-methoxyethane] and 5,5'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1,3-isobenzofurandione] (9CI) (CA INDEX NAME)

CM 1

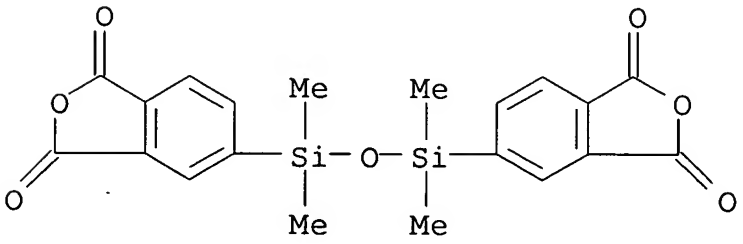
CRN 64078-44-0
CMF C16 H6 O7
CCI IDS



1/2 (D1—O—D1)

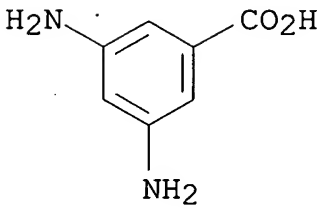
CM 2

CRN 42297-28-9
CMF C20 H18 O7 Si2



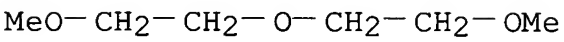
CM 3

CRN 535-87-5
CMF C7 H8 N2 O2



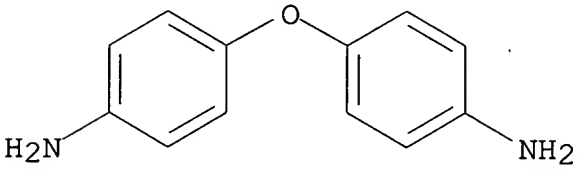
CM 4

CRN 111-96-6
CMF C6 H14 O3

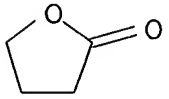


CM 5

CRN 101-80-4
CMF C12 H12 N2 O



IT **96-48-0, .gamma.-Butyrolactone**
(manuf. of solvent-sol. curable polyimides having urethane and alkoxysilyl bonds and solvent- and heat-resistant protection films)
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IC ICM C08G073-10
ICS C08K005-00; C08L079-08; C09D179-08
CC 37-2 (Plastics Manufacture and Processing)
Section cross-reference(s): 35, 38
IT **183241-23-8DP**, reaction products with 3-isocyanatopropyltriethoxysilane
(manuf. of solvent-sol. curable polyimides having alkoxysilyl bonds for solvent- and heat-resistant protection films)
IT **24801-88-5DP**, 3-Isocyanatopropyltriethoxysilane, reaction products with polyimides **33491-28-0DP**, 3-Isocyanatopropylmethyldiethoxysilane, reaction products with polyimides **183241-24-9DP**, reaction products with 3-isocyanatopropylmethyldiethoxysilane **183241-25-0DP**, reaction products with 3-isocyanatopropylmethyldiethoxysilane
(manuf. of solvent-sol. curable polyimides having urethane and alkoxysilyl bonds and solvent- and heat-resistant protection films)
IT **96-48-0**, **.gamma.-Butyrolactone**
(manuf. of solvent-sol. curable polyimides having urethane and alkoxysilyl bonds and solvent- and heat-resistant protection films)

L19 ANSWER 9 OF 13 HCA COPYRIGHT 2004 ACS on STN
124:57980 Curable polyimide-based resin compositions and manufacture of coatings from them. Kato, Hideto; Akiba, Hideki (Shinetsu Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 07238227 A2 19950912 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-54658 19940228.
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

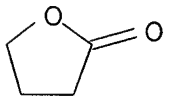
AB The compns. comprise (A) .gtoreq.1 silylated polyimides selected from I and II [R1, R2 = (substituted) C1-10 hydrocarbyl; R3 = C1-10 divalent org. group; X = tetravalent org. group contg. arom. or aliph. ring; Y = divalent org. group; Z = arom. ring-contg. divalent org. group; m = 1-3; n .gtoreq.1; W = arom. ring-contg. trivalent org. group] and (B) mixed solvents contg. 30-80% Ph ethers III [R = H, (substituted) C1-3 hydrocarbyl; R' = (substituted) C1-3 hydrocarbyl] and 20-70% **.gamma.-butyrolactone**.
The coatings are manufd. by curing the compns. Thus, 20.4 g 1,3-bis(3,4-dicarboxyphenyl)-1,1,3,3-tetramethyldisiloxane dianhydride was heated to 160.degree. with 14.8 g 2,2-bis[4-(4-aminophenoxy)phenyl]propane and 3.3 g m-aminobenzoic

acid for 16 h, and then treated with 5.2 g 3-isocyanatopropylmethyldiethoxysilane at room temp. for 10 h in the presence of Et3N to give a silylated polyimide. The polyimide soln. in anisole-.gamma.-butylolactone (50/50) was cured without foaming or turbidity.

IT **96-48-0, .gamma.-Butyrolactone**
(solvent; thermosetting coating materials contg. polyimide-based resin compns.)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



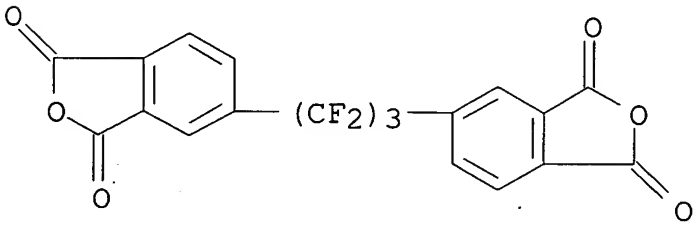
IT **25608-51-9DP**, silylated imide-terminated
86189-70-0DP, polyimide derivs. **152073-28-4P**
152073-29-5P 172086-11-2DP, polyimide derivs.
(thermosetting coating materials contg. polyimide-based resin compns.)

RN 25608-51-9 HCA

CN 1,3-Isobenzofurandione, 5,5'-(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)bis-, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

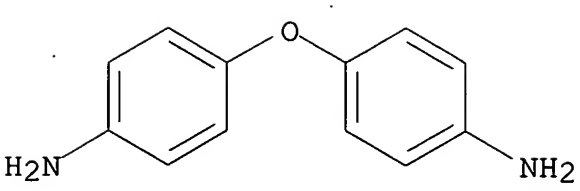
CM 1

CRN 26188-85-2
CMF C19 H6 F6 O6

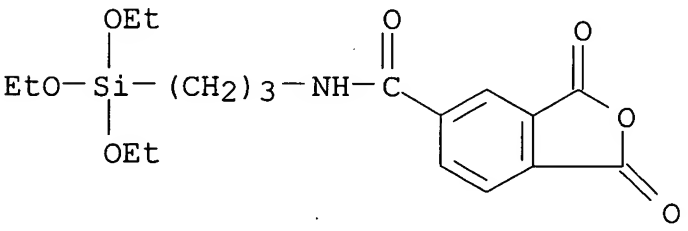


CM 2

CRN 101-80-4
CMF C12 H12 N2 O

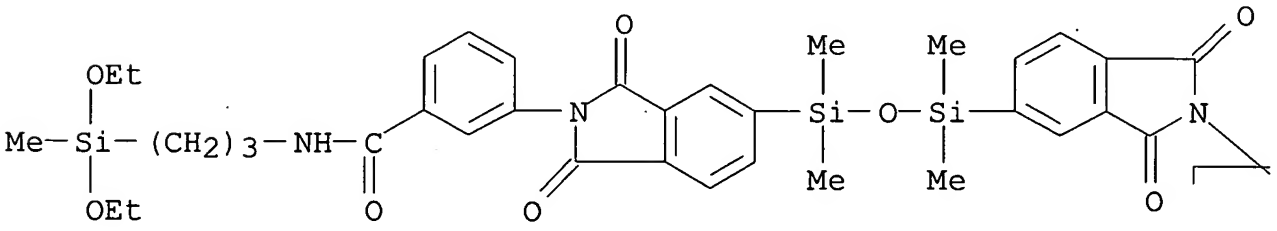


RN 86189-70-0 HCA
CN 5-Isobenzofurancarboxamide, 1,3-dihydro-1,3-dioxo-N-[3-(triethoxysilyl)propyl]- (9CI) (CA INDEX NAME)

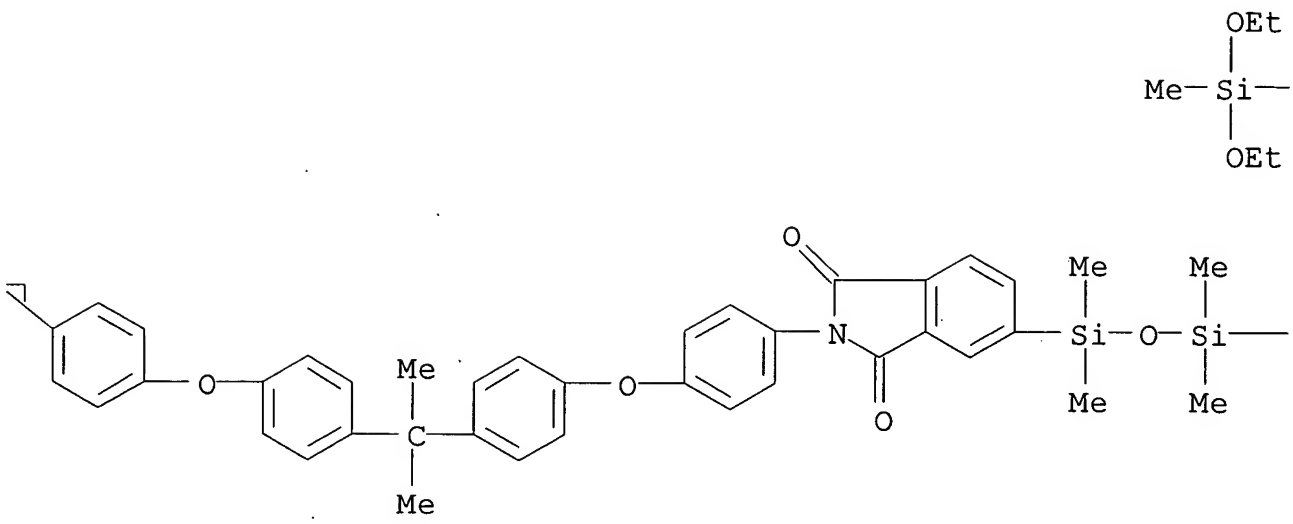


RN 152073-28-4 HCA
CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)(1,1,3,3-tetramethyl-1,3-disiloxanediyl)(1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenyleneoxy-1,4-phenylene(1-methylethylidene)-1,4-phenyleneoxy-1,4-phenylene], .alpha.-[3-[[[3-(diethoxymethylsilyl)propyl]amino]carbonyl]phenyl]-.omega.-[5-[3-[2,3-dihydro-1,3-dioxo-2-[3-[[[3-(diethoxymethylsilyl)propyl]amino]carbonyl]phenyl]-1H-isoindol-5-yl]-1,1,3,3-tetramethyldisiloxanyl]-1,3-dihydro-1,3-dioxo-2H-isoindol-2-yl]- (9CI) (CA INDEX NAME)

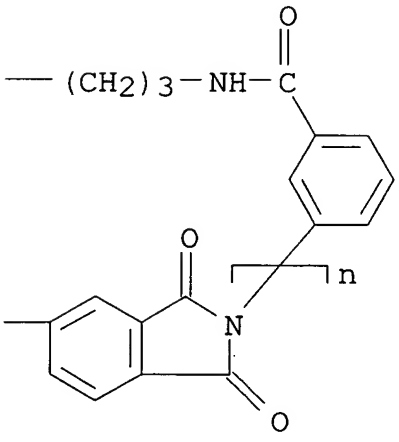
PAGE 1-A



PAGE 1-B



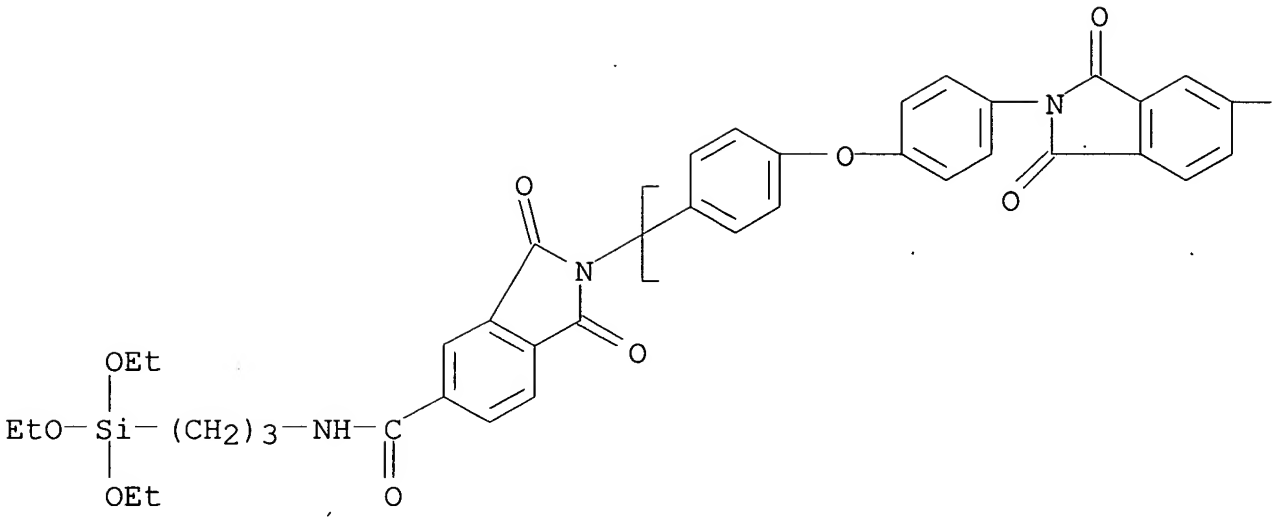
PAGE 1-C



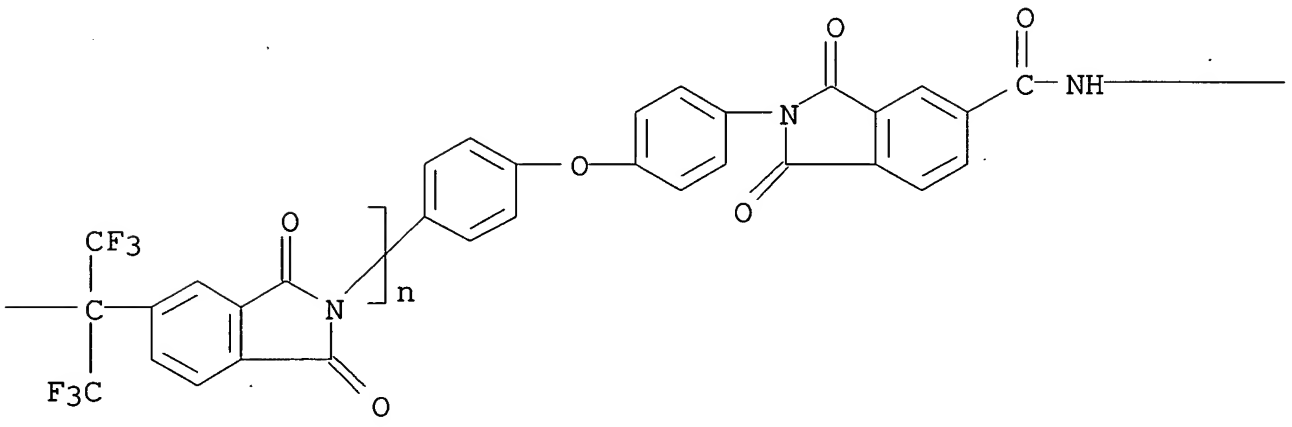
RN 152073-29-5 HCA

CN Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene](1,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diyl)-1,4-phenyleneoxy-1,4-phenylene], .alpha.-[4-[4-[1,3-dihydro-1,3-dioxo-5-[[[3-(triethoxysilyl)propyl]amino]carbonyl]-2H-isoindol-2-yl]phenoxy]phenyl]-.omega.-[1,3-dihydro-1,3-dioxo-5-[[[3-(triethoxysilyl)propyl]amino]carbonyl]-2H-isoindol-2-yl]- (9CI) (CA INDEX NAME)

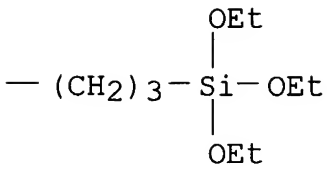
PAGE 1-A



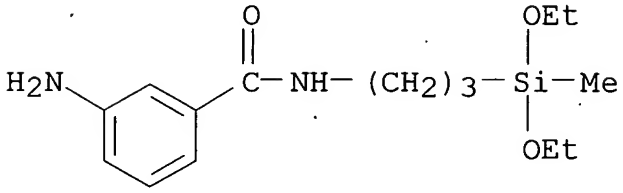
PAGE 1-B



PAGE 1-C

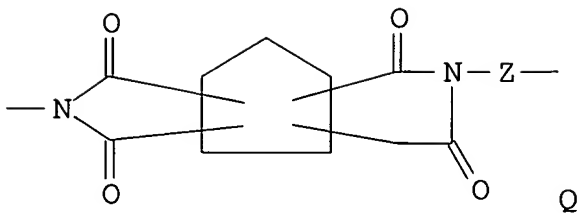


RN 172086-11-2 HCA
CN Benzamide, 3-amino-N-[3-(diethoxymethylsilyl)propyl]- (9CI) (CA INDEX NAME)



IC ICM C08L079-08
ICS C08K005-13; C08K005-15
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 42
IT **96-48-0, .gamma.-Butyrolactone**
100-66-3, Anisole, uses
(solvent; thermosetting coating materials contg. polyimide-based resin compns.)
IT **25608-51-9DP**, silylated imide-terminated
86189-70-0DP, polyimide derivs. **152073-28-4P**
152073-29-5P 172086-10-1DP, silylated imide-terminated
172086-11-2DP, polyimide derivs.
(thermosetting coating materials contg. polyimide-based resin compns.)

L19 ANSWER 10 OF 13 HCA COPYRIGHT 2004 ACS on STN
106:103939 Soluble polyimide coatings. Goto, Kohei; Takinishi, Fumitaka; Togo, Makiko; Ikeda, Hiroharu (Japan Synthetic Rubber Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 61174974 A2 19860806 Showa, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1985-12621 19850128.
GI



AB In coating with sol. polyimides from (carboxymethyl)cyclopentanetric arboxylic dianhydride (I), substrates are primed with the silanes RSiR13-mR2m (R = aminoalkyl; R1 = C1-5 alkyl; R2 = OR3, OCOR4; R3, R4 = C1-5 alkyl; m = 1-3). Thus, a .**gamma**.-**butyrolactone** soln. of 4,4'-oxydianiline-I copolymer was coated on glass primed with (EtO)3Si(CH2)3NH2 to give a 0.20-.mu. film with crosscut adhesion 0/100 after 0 and 5 h in boiling water, vs. 100/100 without the coupler.

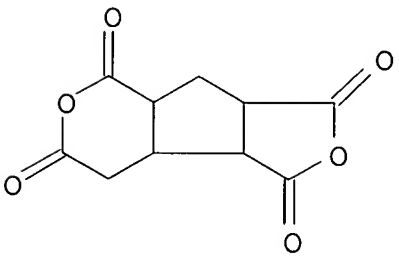
IT **87078-79-3**
(coatings, couplers for, aminosilanes as)

RN 87078-79-3 HCA

CN 1H,3H-Furo[3',4':3,4]cyclopenta[1,2-c]pyran-1,3,5,7-tetrone, hexahydro-, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

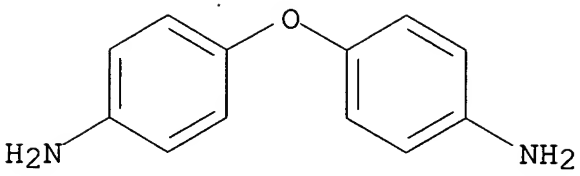
CM 1

CRN 87078-75-9
CMF C10 H8 O6

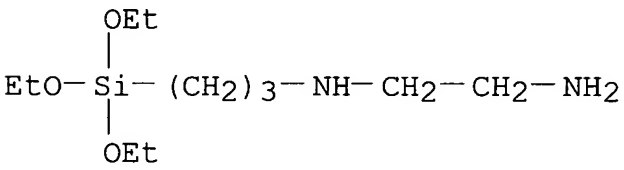


CM 2

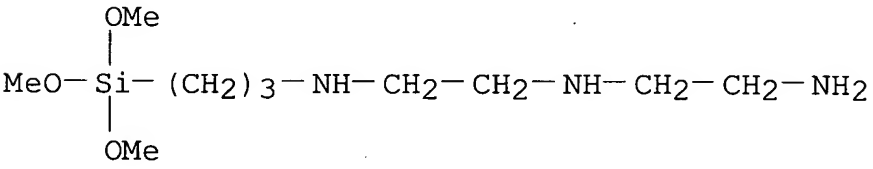
CRN 101-80-4
CMF C12 H12 N2 O



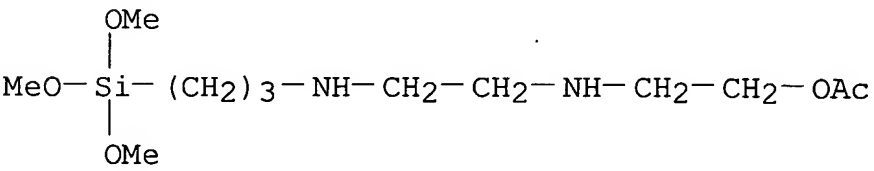
IT **5089-72-5**, N-(2-Aminoethyl)-3-aminopropyltriethoxysilane
35141-30-1 106151-78-4
(coupler, for polyimide coatings)
RN 5089-72-5 HCA
CN 1,2-Ethanediamine, N-[3-(triethoxysilyl)propyl]- (9CI) (CA INDEX NAME)



RN 35141-30-1 HCA
CN 1,2-Ethanediamine, N-(2-aminoethyl)-N'-[3-(trimethoxysilyl)propyl]- (9CI) (CA INDEX NAME)



RN 106151-78-4 HCA
CN 2-Oxa-7,10-diaza-3-siladodecan-12-ol, 3,3-dimethoxy-, acetate (ester) (9CI) (CA INDEX NAME)



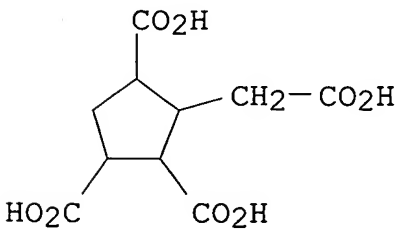
IC ICM B05D007-24
ICS B05D001-36
ICA B32B027-34; C08G073-10; C09D003-49
CC 42-10 (Coatings, Inks, and Related Products)

IT **87078-79-3**
(coatings, couplers for, aminosilanes as)
IT 919-30-2, 3-Aminopropyltriethoxysilane **5089-72-5**,
N-(2-Aminoethyl)-3-aminopropyltriethoxysilane 13822-56-5,
3-Aminopropyltrimethoxysilane **35141-30-1**
106151-78-4
(coupler, for polyimide coatings)

L19 ANSWER 11 OF 13 HCA COPYRIGHT 2004 ACS on STN
106:34788 Soluble polyimide coating compositions. Goto, Kohei; Takinishi, Fumitaka; Togo, Makiko; Ikeda, Hiroharu (Japan Synthetic Rubber Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 61171762 A2 19860802 Showa, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1985-12620 19850128.
AB Mixts. of 2,3,5-tricarboxycyclopentaneacetic acid (I)-based., sol. polyimide and the silanes YZ1SiR3-mXm (Y = aminohydrocarbyl, Z = C1-10 hydrocarbylene; R = C1-5 alkyl; X = alkoxy, acyloxy; m = 1-3) have good heat and chem. resistance, mech. and elec. properties, and adhesion and are useful in coating electronic materials, e.g. glass, Si wafers, etc. Thus, a mixt. of 5% **.gamma.-butyrolactone** soln. of polyimide (prepd. from 0.102 mol oxydianiline and 0.103 mol I in DMF) and 2.5 phr 9-(trimethoxysilyl)-3,6-diazanonyl acetate was spin-coated on glass and dried 1 h at 150.degree. to give a 0.20-.mu. coating with crosscut adhesion 100/100 after 0 or 5 h in boiling water.
IT **87078-74-8**
(coatings, sol., with good adhesion)
RN 87078-74-8 HCA
CN 1,2,4-Cyclopentanetricarboxylic acid, 3-(carboxymethyl)-, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

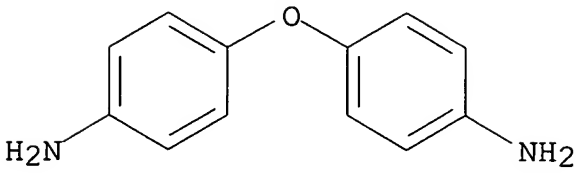
CM 1

CRN 24434-90-0
CMF C10 H12 O8

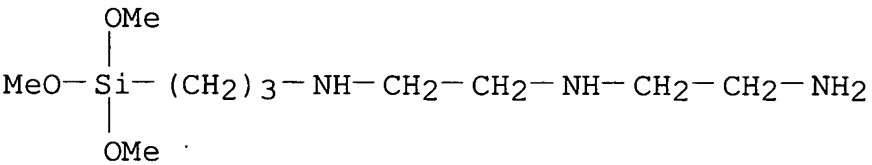


CM 2

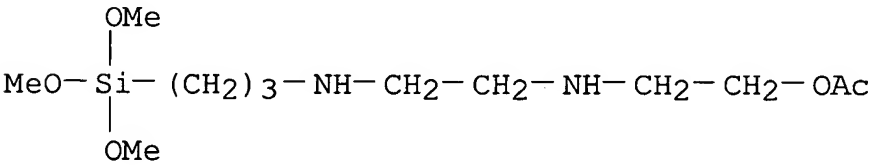
CRN 101-80-4
CMF C12 H12 N2 O



IT **35141-30-1 106151-78-4**
(coupler, for polyimide coatings)
RN 35141-30-1 HCA
CN 1,2-Ethanediamine, N-(2-aminoethyl)-N'-[3-(trimethoxysilyl)propyl]-(9CI) (CA INDEX NAME)



RN 106151-78-4 HCA
CN 2-Oxa-7,10-diaza-3-siladodecan-12-ol, 3,3-dimethoxy-, acetate (ester) (9CI) (CA INDEX NAME)



IC ICM C08L079-08
ICS C08K005-54
ICA C08G073-10; C09D003-49
CC 42-10 (Coatings, Inks, and Related Products)
IT **87078-74-8**
(coatings, sol., with good adhesion)
IT 919-30-2, 3-Triethoxysilylpropylamine 13822-56-5, 3-Trimethoxysilylpropylamine **35141-30-1** **106151-78-4**
(coupler, for polyimide coatings)

L19 ANSWER 12 OF 13 HCA COPYRIGHT 2004 ACS on STN
105:88685 Photosensitive compositions. Ikeda, Akihiko; Ai, Hideo (Asahi Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP

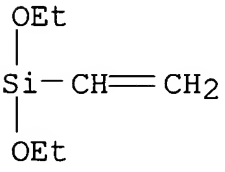
60194444 A2 19851002 Showa, 14 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1984-49339 19840316.

AB Photosensitive compns. contain an arom. compd. having .gtoreq.2 azido groups that are bound to the arom. nucleus directly or via sulfonyl groups and a polymer with repeating units of the general formula Z(CO2R)nZ2R1R1mZ2 [Z = (2 + n) valent carbon or heterocyclic ring group; Z1 = (2 + m) valent carbon or heterocyclic group; Z2 = CONH, NHCO, NHCONH, OCONH; R = ethylenic group not conjugated with carbonyl group; R1 = a group that forms a ring with CO group of the carboxyl group by thermal dehydroxylation; n = 1, 2; m = 0-2; the CO2R and Z2 are in the o-position to each other]. The compns. that are useful in lithog. processes have high sensitivity, are thermally stable, and provide reduced gas evolution during heat treatment. Thus, a mixt. of 2,5-bis(allyloxycarbonyl)terephthalic acid and 2,4-bis(allyloxycarbonyl)isophthalic acid was prepd. by reacting allyl alc. 349 g with pyromellitic anhydride 218 g. The product 17 g was mixed with HMPA 50 g, treated with SO2Cl2 12 g, and then with a soln. of 4,4'-diaminodiphenyl ether 10 g in HMPA 25.3 g. After reacting with HMPA 20 g, the mixt. was added to **.gamma.-butyrolactone** 50 g and poured into vigorously stirred warm H2O 4 L. The filament-like deposits were washed and dried in vacuum. The product 25, 2,6-bis(4'-azidobenzal)-4-methylcyclohexanone 1.25, and triethoxyvinylsilane 0.1 g were dissolved in N-methylpyrrolidone and spin-coated on a Si wafer to form a 1.6-.mu. layer. The material was sensitometrically exposed to UV and developed by spraying with a 1:1 **.gamma.-butyrolactone**-iso-PrOH mixt. About 50% of the original layer thickness was retained by 13 mJ/cm2 and 80% by 16 mJ/cm2. A decrease in the layer thickness by 30% was obtained by treatment at 400.degree. for 1 h.

IT **78-08-0**
(photosensitive compns. contg. copolymer resin and diazido arom. compd. and, for photolithog. processes)

RN 78-08-0 HCA

CN Silane, ethenyltriethoxy- (9CI) (CA INDEX NAME)



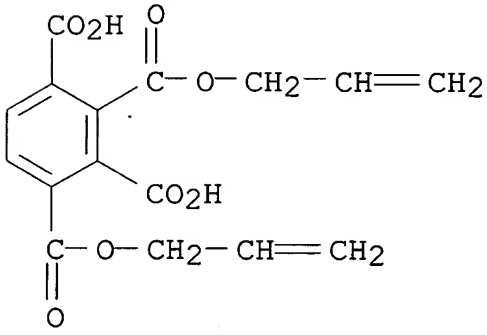
IT **103728-61-6 103728-62-7 103728-63-8 103728-64-9 103728-65-0**
(photosensitive compns. contg. diazido arom. compd. and, for photolithog. process)

RN 103728-61-6 HCA

CN 1,2,3,4-Benzenetetracarboxylic acid, 1,3-di-2-propenyl ester, polymer with 1,4-di-2-propenyl dihydrogen 1,2,4,5-benzenetetracarboxylate, 2(3H)-furanone and 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

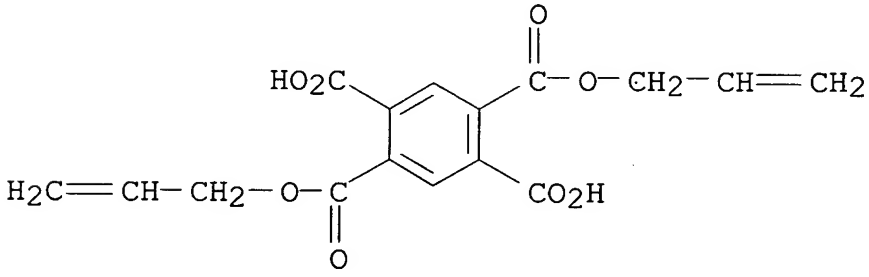
CM 1

CRN 103728-60-5
CMF C16 H14 O8



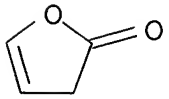
CM 2

CRN 34572-41-3
CMF C16 H14 O8



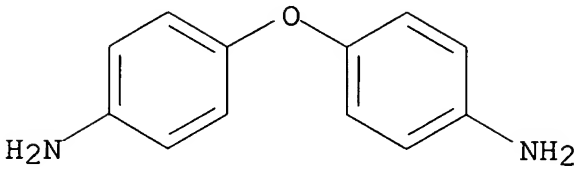
CM 3

CRN 20825-71-2
CMF C4 H4 O2



CM 4

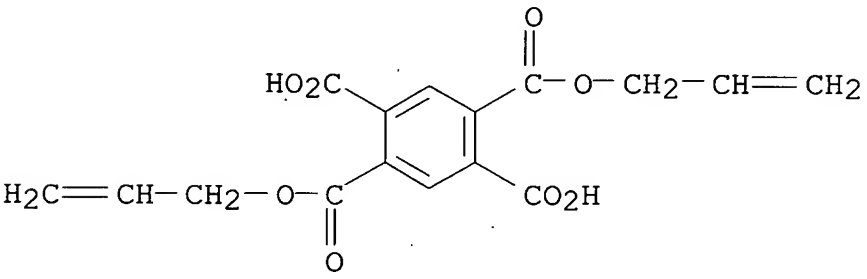
CRN 101-80-4
CMF C12 H12 N2 O



RN 103728-62-7 HCA
CN 1,2,4,5-Benzenetetracarboxylic acid, 1,4-di-2-propenyl ester, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

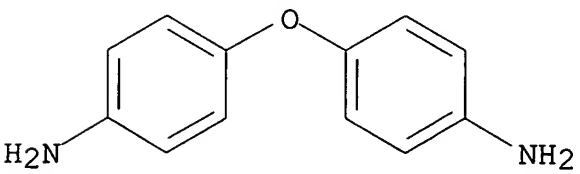
CM 1

CRN 34572-41-3
CMF C16 H14 O8



CM 2

CRN 101-80-4
CMF C12 H12 N2 O

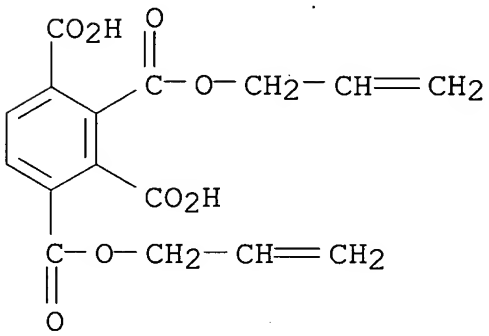


RN 103728-63-8 HCA
CN 1,2,3,4-Benzenetetracarboxylic acid, 1,3-di-2-propenyl ester,

polymer with 1,4-di-2-propenyl dihydrogen 1,2,4,5-benzenetetracarboxylate and 4,4'-sulfonylbis[benzenamine] (9CI) (CA INDEX NAME)

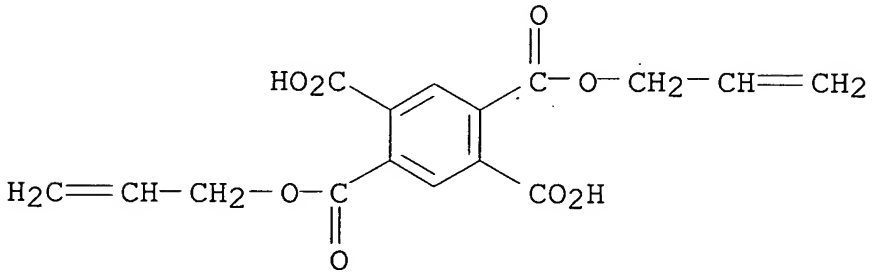
CM 1

CRN 103728-60-5
CMF C16 H14 O8



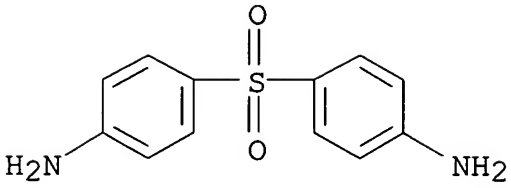
CM 2

CRN 34572-41-3
CMF C16 H14 O8



CM 3

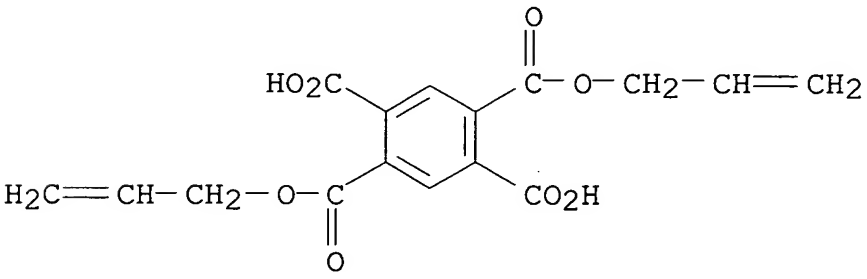
CRN 80-08-0
CMF C12 H12 N2 O2 S



RN 103728-64-9 HCA
CN 1,2,4,5-Benzenetetracarboxylic acid, 1,4-di-2-propenyl ester, polymer with 3,3'-oxybis[6-aminobenzamide] (9CI) (CA INDEX NAME)

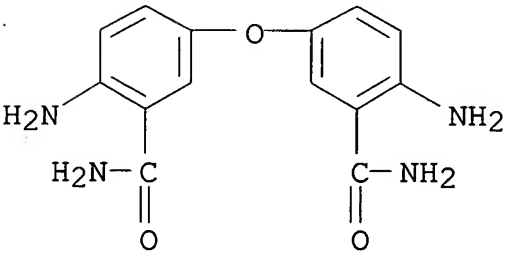
CM 1

CRN 34572-41-3
CMF C16 H14 O8



CM 2

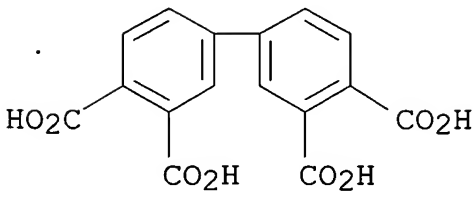
CRN 25251-49-4
CMF C14 H14 N4 O3



RN 103728-65-0 HCA
CN [1,1'-Biphenyl]-3,3',4,4'-tetracarboxylic acid, polymer with 4,4'-oxybis[benzenamine] and [(2-propenyloxy)methyl]oxirane (9CI) (CA INDEX NAME)

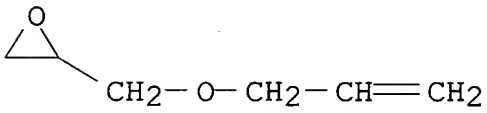
CM 1

CRN 22803-05-0
CMF C16 H10 O8



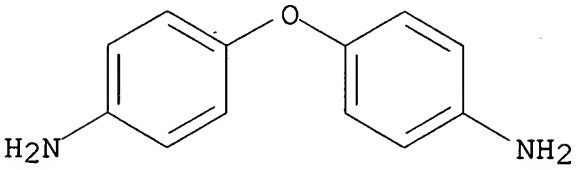
CM 2

CRN 106-92-3
CMF C6 H10 O2



CM 3

CRN 101-80-4
CMF C12 H12 N2 O



IC ICM G03C001-71
ICS G03F007-08
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT **78-08-0** 42397-65-9 63021-86-3
(photosensitive compns. contg. copolymer resin and diazido arom. compd. and, for photolithog. processes)
IT 103696-27-1 103696-29-3 103696-31-7 103696-33-9 103710-35-6
103728-61-6 103728-62-7 103728-63-8
103728-64-9 103728-65-0 103774-22-7

(photosensitive compns. contg. diazido arom. compd. and, for photolithog. process)

L19 ANSWER 13 OF 13 HCA COPYRIGHT 2004 ACS on STN
105:15290 Polyimidazole and polyimidazopyrrolone relief structures. Ahne, Hellmut (Siemens A.-G. , Fed. Rep. Ger.). Ger. Offen. DE 3411714 A1 19851010, 15 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1984-3411714 19840329.

AB High temp.-resistant polyimidazole and polyimidazopyrrolone relief structures are prepd. by coating a radiation-sensitive, sol. polymer precursor upon a support, irradiating the layer or film through a neg. original with light, electrons, ions, or a laser, removing the nonirradiated areas, and then, optionally, tempering. The polymer precursor is prepd. by reaction of an arom. and/or heterocyclic tetraaamine with olefinic unsatd. monocarboxylic and dicarboxylic acids or with olefinic monocarboxylic acids and arom. and/or heterocyclic tetracarboxylc dianhydrides or with an olefinic tetracarboxylic acid diester in the form of an addn. product from a tetracarboxylic dianhydride and an olefinic alc. in the presence of a carbodiimide. Thus, a **.gamma.-butyrolactone** soln. of a polybenzimidazole precursor (prepd. by reacting diaminobenzidine with methacrylic acid and then with isophthalic acid) 20 mL, Michlers's ketone 0.1, and N-phenylmaleimide 0.3 g was coated on an Al plate, dried, exposed through a mask, and spray-developed with **.gamma.-butyrolactone** to give a relief structure that was converted by tempering 30 min at 400.degree. to a polybenzimidazole relief structure.

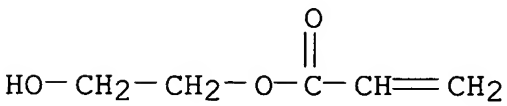
IT **102610-70-8**
(photosensitive compns. contg., for heat-resistant relief images)

RN 102610-70-8 HCA

CN 2-Propenoic acid, 2-hydroxyethyl ester, polymer with 1H,3H-benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone and [1,1'-biphenyl]-3,3',4,4'-tetramine (9CI) (CA INDEX NAME)

CM 1

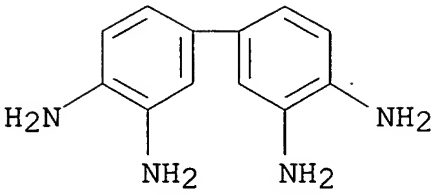
CRN 818-61-1
CMF C5 H8 O3



CM 2

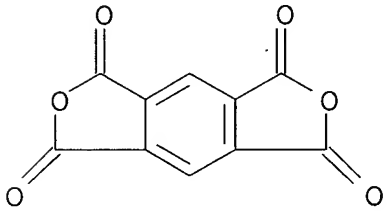
CRN 91-95-2

CMF C12 H14 N4



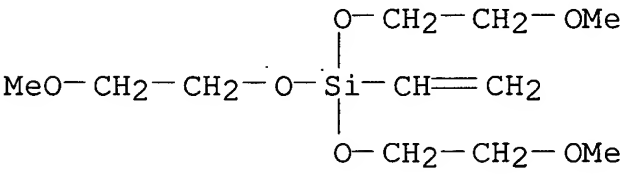
CM 3

CRN 89-32-7
CMF C10 H2 O6



IT **1067-53-4 102610-69-5**
(photosensitive compns. contg., for heat-resistant relief structures)

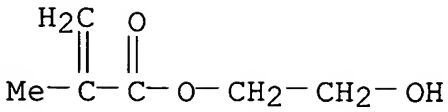
RN 1067-53-4 HCA
CN 2,5,7,10-Tetraoxa-6-silaundecane, 6-ethenyl-6-(2-methoxyethoxy)- (9CI) (CA INDEX NAME)



RN 102610-69-5 HCA
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with 1H,3H-benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone and [1,1'-biphenyl]-3,3',4,4'-tetramine (9CI) (CA INDEX NAME)

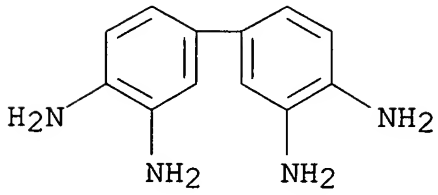
CM 1

CRN 868-77-9
CMF C6 H10 O3



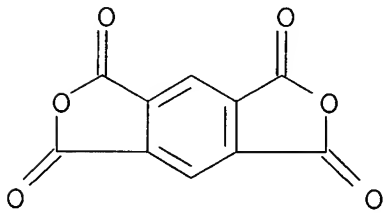
CM 2

CRN 91-95-2
CMF C12 H14 N4



CM 3

CRN 89-32-7
CMF C10 H2 O6



IC ICM G03F007-00
ICS G03C001-70; C08G073-12; B44F007-00; H01B003-18; H01L023-30; H01L021-312
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
IT 941-69-5 102610-68-4 **102610-70-8**
(photosensitive compns. contg., for heat-resistant relief images)
IT 90-94-8 **1067-53-4** 76643-29-3 **102610-69-5**
(photosensitive compns. contg., for heat-resistant relief structures)